INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR 293rd BSB Mannheim 2003-2007

VOLUME III - TRAINING AREA

FINAL

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293rd BSB MANNHEIM;

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ACRONYMS

AAFES	Army/Air Force Exchange Service
AEC	Activity Environmental Coordinator
AFH	Army Family Housing
AFPMB	Armed Forces Pest Management Board
ABG	Auftragsbautengrundsätze
AMC	Army Materiel Command
ANSI	American National Standards Institute
AOR	Area of Responsibility
AR	Army Regulation
ASG	Area Support Group
ATC	Army Training Command
BASOPS	Base Operations
BfN	*Bundesamt für Naturschutz* (Federal Nature Protection Authority)
BFV	Benjamin Franklin Village
BSB	Base Support Battalion
CADD	Computer Aided Drafting and Design
CAP	Conservation Assistance Program
CENTAG	Central European Army Group
CHPPM-EU	Center for Health Promotion and Preventive Medicine - Europe
CONUS	Contiguous United States
DAPam	Department of the Army Pamphlet
DCA	Directorate of Community Activities
DEH	Directorate of Engineering and Housing
DIN	*Deutsche Industrie Norm* (German Industry Standard)
DoD	Department of Defense
DoDDS	Department of Defense Dependent Schools
DOT	Directorate of Training
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
DSN	Defense System Network
DSV	*Deutscher Schädlingbekämpferverband* (German Pest Management Association)
DWTP	Domestic Wastewater Treatment Plant
EA	Environmental Awareness
EAC	Emergency Action Center
ECAR	The Environmental Compliance Assessment Report
ECAS	The Environmental Compliance Assessment System
EIS	Environmental Impact Statement
EMO	Environmental Management Office
EO	Executive Order
EQCC	Environmental Quality Control Committee
ERG	Environmental Review Guide
ERS	European Remote Sensing Satellite
ESRI	Environmental Systems Research Institute

ET&S	Engineering Technical Services
EUCOM	European Command
FAO	Federal Assets Office
FFH	Flora-Fauna-Habitat
FGS-G	Final Governing Standards, Germany
FORSCOM	Forces Command
FRG	Federal Republic of Germany
FY	Fiscal Year
GIS	Geographic Information System
GSW	German Specified Water
GUI	Graphic User Interface
HM	Hazardous Material
HQDA	Headquarters Department of the Army
HW	Hazardous Waste
HWSA	Hazardous Waste Storage Area
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
ISA	Interservice Agreement
ISR	Installation Status Report
ITAM	Integrated Training Area Management
LANDSAT TM	Land Remote Sensing Satellite Thematic Mapper
LCTA	Land Condition Trend Analysis
LfU	*Landesamt für Umweltschutz* (State Environmental Protection Agency)
LLTA	Lampertheim Local Training Area
LPflG	*Landespflegegesetz* (Land Conservation)
LRAM	Land Rehabilitation and Maintenance
LTA	Local Training Area
MACOM(s)	Major Army Command(s)
MACS	Multipurpose Arcade Combat Simulators
MAGIC	Military Activity GIS Interface Concept
MAI	Main Active Ingredient
MEDDAC	Medical Department Activity
MOM	Measures of Merit
MSL	Mean Sea Level
MWR	Moral, Welfare, and Recreation
NAF	Non-Appropriated Funds
NATO	North Atlantic Treaty Organization
NBC	Nuclear Biological Chamber
NEPA	National Environmental Policy Act
NVCS	National Vegetation Classification System
OCONUS	Outside Contiguous United States
ODCSENGR	Office of the Deputy Chief of Staff, Engineer
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
OEGBD	Overseas Environmental Baseline Guidance Document
OMA	Operations and Maintenance, Army
OPCON	Operational Control
OPRED	Operational Readiness

OPTEMPO	Operational Tempo
PAI	Pounds of Active Ingredient
PMR	Program Management Review
pnV	Potential Natural Vegetation
POC	Point of Contact
PWSMP	Potable Water System Management Plan
PX	Post Exchange
QOL	Quality of Life
RADAR	Radio Detection and Ranging
RDB	Red Data Book
RPMA	Real Property Maintenance Activities
RSC	Regional Support Center
RSO	Reception, Staging and Onward Movement
RTLP	Range and Training Land Program
RTSC	Regional Training Support Center
SA	Supplementary Agreement
SAC(s)	Special Areas of Conservation
SDE	Spatial Database Engine
SDSFIE	Spatial Data Standard for Facilities, Infrastructure and Environment
SOFA	Status of Forces Agreement
SOP	Standard Operating Procedure
SOS	Schedule of Services
SPA	Special Protection Area
TAACOM	Theater Army Area Command
TES	Threatened and Endangered Species
TCT	Total Containment Trap
TG	Technichal Guide
TIM	Technical Information Manual
TM	Technical Manual
TRI	Training Requirements Integration
TrinkwV	*Trinkwasserverordnung* (Federal Drinking Water Standards)
TSD	Training Support Division
TSSDS	Tri-Services Spatial Data Standard
TÜV	*Technischer Überwachungsverein* (the principal non-profit monitoring and accreditation body in Germany)
USACERL	U.S. Army Construction Engineering Research Laboratory
USAEC	U.S. Army Environmental Center
USAREUR	U.S. Army Europe
UTM	Universal Transverse Mercator
UXO	Unexploded Ordinance
VENC	High Visibility Environmental Compliance
VENN	High Visibility Environmental Conservation
VEPP	High Visbility Pollution Prevention
WHG	*Wasserhaushaltsgesetz* (Water Management Act)

GLOSSARY OF TERMS

ABG-75: "*Auftragsbautengrundsätze - 1975*" (Principles for Contracting Construction Projects - 1975) is an agreement between the Federal Republic of Germany and the financing bodies, to include the United States, on the procedures to be followed by the financing bodies to accomplish construction within Germany.

Adverse Effect: Changes that reduce the quality of the natural environment or diminish the quality or significant value of archaeological resources, cultural resources, or property.

Bannwald: Is a woodland which is protected for its important natural function/s such as acting a noise barrier, maintenance of the water catchment, and influence on the microclimate.

Biotopes: A small habitat characterized by its unique composition.

Biodiversity: As defined by Army Regulation 200-3, biodiversity is the variety of life and its processes, it includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.

Carrying Capacity (Ecological): The maximum density of wildlife which a particular area or habitat is capable of carrying on a sustained basis without deterioration of the habitat.

Carrying Capacity (ITAM): The amount of training that a given parcel of land can accommodate in a sustainable manner with a reasonable and prudent level of maintenance and rehabilitation. The optimum capacity is a balance of usage, condition, and level of maintenance.

Check Dams: Structures built on ephemeral stream beds, in order to control the flow of sedimentation into surface waters, often associated with retention basins.

Chlorination: The application of chlorine to water, wastewater, or industrial wastes, generally for the purpose of disinfection.

Climax vegetation: Stable end community of succession that is capable of self-perpetuating under prevailing environmental conditions.

Conservation: Wise management and use of natural resources to provide the best public benefits for present and future generations.

Contaminated water: Water that has been intruded by microorganisms, chemicals, wastes, or wastewater in a concentration that makes the water unfit for its intended use.

Ecoregion: Geographical region based on regional patterns in landsurface form, soil, potential natural vegetation, and land use.

Edge Effect: The effect, generally favorable to wildlife, produced by the conditions existing where one habitat or cover type ends, and another one begins.

Ephemeral: Temporary or seasonal.

Endangered Species: Any species of flora or fauna, listed in Table 13-1 in the FGS-G, in a German state's Red List (Rote Liste Deutschland), or designated in some other fashion by the governments of the United States or Germany whose continued existence is, or is likely to be, threatened and is therefore subject to special protection from destruction or adverse modification of associated habitat.

Environment: The natural and physical environment, excluding social, economic, and other environments.

Fauna: Animals collectively.

Flora: Plant life collectively.

Forest Management: The science, art, and practice of managing and using for human benefit the natural resources that occur on or in association with forest lands.

Habitat: The place where a plant or animal species naturally lives and grows, or the environment in which the life needs of an organism, population, or biological community are supplied.

Herbicide: A chemical agent used to destroy or inhibit plant growth.

Improved Grounds: Acreage on which intensive maintenance activities are performed.

Integrated Pest Management: The use of all appropriate technology and management techniques to bring about pest prevention and suppression in a cost-effective and environmentally sound manner.

Inventory-Wildlife: Estimates of populations of wild animals, by species, on an area at a given time, based upon various types of procedures.

Management Plan: A document describing the quality of natural resources, their quantity, condition, and actions to ensure stewardship of natural resources.

Multiple Use: The integrated management of more than one land use to achieve the optimum use and enjoyment of natural resources while maintaining a balance of environmental qualities, ecological relationships, and aesthetic values.

Natural Resource: All living and inanimate materials supplied by nature that are of aesthetic, ecological, educational, historical, recreational, scientific, or other value.

Natural Resources Management: Action taken to protect, manipulate, alter, or manage environmental, human, and biological resources in harmony with each other to meet present and future human needs.

Outdoor Recreation Area: Land or water area with characteristics that make it suitable for one or more specific outdoor recreation activities. It does not, however, include athletic facilities such as ball fields and golf courses.

Outfall: The point or location where wastewater or drainage discharges from a sewer, drain or conduit.

Pest: Organisms (except for microorganisms that cause human or animal disease) that adversely affect the well being of humans or animals, attack Real Property, supplies, equipment or vegetation, or are otherwise undesirable.

Pesticide: Any substance or mixture of substances, including biological control agents, that may prevent, destroy, repel, or mitigate any pests; also any substance or mixture of substances used as plant regulators, defoliants, or desiccants.

pH: The acidity or alkalinity of a substance measured as a percentage of hydrogen ions formed in solution.

Potable water: Water that has been examined and treated to meet proper standards and declared by responsible authorities to be fit for drinking and domestic use.

Potential Natural Vegetation (pnV): is the vegetation that is expected to develop after the human influence on a particular area ceases. 'After' in some cases mean more hudreds rather than tens of years.

Retention Basin: Structures built to retain storm water and other surface run-off water, in order to control sedimentation, often associated with check dams.

Riparian: Along banks of rivers and streams.

Runoff: Water from rain, snowmelt, or irrigation that flows over the ground surface to a stream, lake, pond, or underground aquifer.

Sediment: Solid material, such as silt, sand, and organic matter, that moves from its site of origin and settles to the bottom of a watercourse or water body. Excessive amounts of sediment can clog a watercourse and interfere with navigation, fish migration, spawning, etc. If disturbed, sediment can be re-suspended in the water column, where it contributes to turbidity.

Semi-improved Grounds: Areas on which periodic recurring maintenance is performed, but to a lesser degree than improved grounds.

Sludge: The solids separated from liquids during processing or through deposition on bottom of streams and other bodies of water. A mixture of liquids and solids.

Surface Waters: Those waters continuously or occasionally flowing in beds, standing, or naturally flowing from springs.

State: The political subdivision referred to as *Land* in Germany.

Succession: Replacement of one ecological community by another; often progresses to a stable terminal community called climax.

Sustainable Use: Use of the land that meets the needs of the present generation without compromising those of future generations.

Syncline: A generally U-shaped fold or structure in stratified rock.

Threatened Species: Those plants and animals that are likely to become endangered within the foreseeable future throughout a significant portion of their ranges.

Throw: the vertical component of a dip separation measured in a vertical section at right angles to the fault surface.

Unimproved Grounds: Acreage occupied by land on which no maintenance activities occur.

Wastewater Treatment Plant (WWTP): Any DoD or host nation facility designed to treat wastewater before its discharge to waters of the host nation and in which the majority of such wastewater is made up of domestic sewage.

Watershed: The high ground (boundary) separating adjacent drainage where a 'drainage basin' is the region drained by a particular river or channel system.

Water Use: The removal or diversion of waters from surface waters: damming or lowering of surface waters; removal of solids from surface waters so that the condition of the water or its drainage is affected; introduction or discharge of substances into coastal waters; discharge of substances into the groundwater; removal, unearthing, drawing, and diverting or groundwater; damming, lowering, and conducting groundwater through facilities intended for these purposes; and measures that are likely to cause lasting or significant deleterious changes in the physical, chemical, or biological quality of the water.

Waters of The Host Nation: Surface waters including the territorial seas recognized under customary international law, including;

- all waters that are currently used, used in the past, or may be susceptible to use in commerce;
- waters that are or could be used for recreation or other purpose;

- waters from which fish or shellfish are or could be taken or sold;
- waters that are used or could be used for industrial purposes by industry;
- waters including lakes, rivers, streams (including intermittent streams) sloughs, prairie potholes, or natural pond;
- tributaries of waters identified above.

Waste treatment systems: including treatment ponds or lagoons, are not waters of the host nation. This exclusion only applies to human-made bodies of water that neither were originally waters of the host nation nor resulted from the impoundment of waters of the host nation.

Water Protection Area: An area established by a German state to protect public water supplies, supplement groundwater, or prevent harmful runoff of precipitation and flooding, as well as to prevent entry into the water of soil constituents or substances used to treat and fertilize plants. The state will publish a set of restrictions for each area designated apicable to all, including DoD components.

Wetlands: Areas inundated or saturated by surface water or groundwater at a frequency and a duration to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

CHAPTER 13.0

TRAINING AREA PLAN INTRODUCTION

13.1 ORGANIZATION OF VOLUME III

Volume III of the Integrated Natural Resources Management Plan (INRMP) for the 293rd BSB Mannheim contains Chapters 13 through 15. Chapter 14 addresses the specific natural resources management programs for the training areas of the 293rd BSB Mannheim. Chapter 15 summarizes the implementation of the programs discussed in the previous chapters. Sections for each management program include descriptions of responsibilities, points of contact, a program overview, standard operating procedures, management issues and concerns, management goals and objectives, project/program priorities and implementation information.

The natural resources management programs for the training areas have identified management goals designed to address management issues and concerns. The Project/ Program Priorities section of each program are defined as Highest Priority, Important, or Less Important. The following definitions are according to the Draft Guidelines for Preparing Integrated Natural Resources Management Plans (USAEC, March 1997).

- The projects that have been classified as Highest Priority are those, which are needed in order to be in compliance with environmental regulations.
- The projects that have been classified as Important are those that will directly benefit the military mission or which will significantly improve the quality of life at the installation.
- The projects classified as Less Important are those which would first be cut or will only be implemented if funding is available.

Some of the natural resources programs addressed by this INRMP are not applicable to the training areas. Accordingly, detailed information on these programs is not presented. Furthermore, some information for the management programs overlap with the cantonment areas. In such cases, Volume II of the INRMP is cross-referenced to avoid repeating information. References are listed in Appendix A3 and persons contacted are listed in Appendix B3. Each volume has separate appendices.

13.2 SUMMARY OF TRAINING AREA NATURAL RESOURCES

This section provides a brief overview of the natural resources found in the training areas. More detailed descriptions are contained in Volume I, Chapter 5. The training areas at the 293rd BSB Mannheim consists of 4,087 acres (1,665 ha) which are predominantly classified as unimproved grounds. The 293rd BSB Mannheim contains one training area: the Lampertheim Training Area, which is mainly used for land navigation, bivouacking, and vehicle training. A Total Containment Trap (TCT), an M203 Range and an NBC chamber are located within the LTA. The former Shooting Range has been moved to the current location outside of the Water Protection Zone and contaminated soil removed. Natural resources on the training areas include various threatened and endangered species as described in chapter 14.5 in this volume.

The LTA is located on thick layers of eolian sand, which have accumulated to inland sand dunes in some places. These are mainly characterized by dry slightly ruderalized grassland interspersed with several patches of dry sand meadows. The most important plant communities (also listed in the FHH Directive as being of European interest) in these areas are semi-natural dry grasslands and scrubland facies on calcareous substrates, open grassland and xeric sand calcareous grasslands. These above-mentioned vegetation units are also protected by § 24 Nature Protection Law Baden-Wuerttemberg (Naturschutzgesetz Baden-Wuerttemberg (NatG)). The valuable and extensive dry sand meadows at Lampertheim LTA are the largest within the entire Rhine-Neckar-Region and thus of state to nation-wide significance.

13.3 POINTS OF CONTACT

The points of contact for the US Army are given in Table 13.3.1. The points of contact for the German Agencies involved with management of specific natural resources at the 293rd BSB Mannheim are given in Table 13.3.2.

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TABLE 13.3.1

293RD BSB MANNHEIM NATURAL RESOURCE MANAGEMENT PLAN

POINTS OF CONTACT

Program	Location	Responsible Department	Primary Point of Contact			
			Title	Name	Building Number	Telephone Number (DSN)
USAREUR ITAM Program Manager	Grafenwöhr	DOT	ITAM Program Director	Mr. Wolff	621	475-6902
ITAM Program	Mannheim	RTSC Mannheim	ITAM Coordinator	Mr. Wemhoff		373-7907
Lampertheim Training Range Manager -LRAM -TRI -EA	Mannheim	7th ATC	Chief/Training Support Range Manager	Mr. Cruz Mr. Agee	50	382-5107
Forest Management	Mannheim	DPW – O&M	Superv. Landscape Architect	Mr. Meinzer	346	381-7009
	Heidelberg	DCSENGR	Command Forester	Mr. Grimm	3796	370-6799
Fish & Wildlife Management						
- Fish	N/A	N/A	N/A	N/A	N/A	N/A
- Wildlife	N/A	N/A	N/A	N/A	N/A	N/A
Rare, Threatened and Endangered Species Management	Mannheim	DPW - EMO	Environmental Specialist	Mr. Weinerth	346	381-7007
Wetlands Management	N/A					

TABLE 13.3.1 (CONT.)

Program	Location	Responsible Department	Primary Point of Contact			
			Title	Name	Building Number	Telephone Number (DSN)
Water Resources Management - Water Resources Quality - Water Supply/Wastewater Treatment	Mannheim Mannheim Mannheim	DPW – O&M DPW – O&M/EMO DPW – O&M	C/O&M Environmental Specialist Civil Engineer	Mr. Marx Mr. Schork Mr. Menz	346 346 346	381-8927 381-7035 381-7009
Agricultural and Grazing Outleasing	N/A					
Pest Management Fire Management	Mannheim Mannheim	DPW – O&M Fire and Emergency Services	Entomologist Fire & Emerg. Svcs.	Mr. Fluhrer Mr. Ott	313B 21	381-7456 381-4690
Outdoor Recreation	Mannheim	Outdoor Recreation		Mr. Leigh	375	381-7215
Cultural Resources	Mannheim	DPW – EMO	Environmental Specialist	Mr. Weinerth	346	381-7007
Grounds Maintenance and Vegetation Management	Mannheim Heidelberg	DPW – O&M DCSENGR Env.	Civil Engineer Command Management Agronomist	Mr. Meinzer Mr. Elyn	346 3796	381-7009 370-7699

TABLE 13.3.2

GERMAN AGENCY POINTS OF CONTACT

Training area (Hesse)

Program Name	**Responsible Agency**	**Primary Point of Contact**		
		Title	**Name**	**Telephone Number**
Forest Management*	Forestry Lampertheim	Oberförster	Mr. Schepp	06206-94520
Fish and Wildlife Management	Forestry Lampertheim	Oberförster	Mr. Schepp	
TES Management	Forestry Lampertheim	Oberförster	Mr. Schepp	
Agricultural and Outleasing Program	N/A			

Cantonment area (Baden-Wuerttemberg, Rhineland-Palatinate)

Program Name	**Responsible Agency**	**Primary Point of Contact**		
		Title	**Name**	**Telephone Number**
Forest Management*	Bundesforstamt Bad Kreuznach	Oberförster	Mr. Rodach	06345-919264
Fish and Wildlife Management	Bundesforstamt Bad Kreuznach	Oberförster	Mr. Rodach	06345-919264
TES Management	City Mannheim	Sachbearbeiter Naturschutz	Mr. Schneider	0621-293-7440
Agricultural and Outleasing Program	N/A			
Water Management Program Grounds Maintenance	Staatliches Hochbauamt Heidelberg	Sachbearbeiter Wasser und Grünflächenplanung	Mr. Schley	06221-530336

* The points of contact for each of the Forest Districts are listed in Chapter 14.3.

CHAPTER 14.0

NATURAL RESOURCES

MANAGEMENT PROGRAMS

14.1 INTRODUCTION TO MANAGEMENT PROGRAMS

This chapter presents the natural resources program structure for the training area of the 293rd BSB Mannheim, outlines management issues and concerns, and establishes goals and objectives to address management issues. The program structure is based on the installation-specific management situation and is designed to facilitate issue identification and prioritization, as well as project funding, implementation, and tracking. Natural resources management programs at the training area are grouped into the following two categories: Integrated Training Area Management (ITAM) Programs and resource-specific management programs.

The ITAM Program is one of the mechanisms for achieving the overall goals of the INRMP. Resource-specific management programs cover other planning requirements needed to meet U.S. Army and host nation stewardship goals. There is significant overlap and interaction between ITAM and resource-specific management programs, just as there is significant interaction between resources that are managed under these programs. The following information is presented below for each of the management programs: responsibilities and points of contact at the installation and the German government; a listing of applicable regulatory requirements (See Volume I, Chapter 6.0 for a detailed overview of regulatory requirements); a description of the program and its current status; standard operating procedures; management issues and concerns; management goals and objectives; inventorying and monitoring; resources required for implementation; project/program priorities; cost saving opportunities; and implementation schedule.

The funding of natural resources management programs within the training areas falls into four principal categories: Environmental, Operations and Maintenance (OMA), ITAM (Integrated Training Area Management) and Agricultural and Grazing Fund (AG-Funds).

Environmental funds include: VENC (Compliance funds); VENN (Conservation funds) and VEPP (Pollution Prevention funds). funds. VENC, VENN and VEPP are four digit codes used to describe the Management Decision Making Program (MDEP). Further details on specific projects that can be programmed for each fund type are available from the EMO Office and USAREUR. It should be noted that VENC funds can be used to bring a program into compliance, but once a program is brought into compliance, these funds cannot be used again if the program goes out of compliance at a future date. OMA funds are used for projects that do not fall into any of the other categories.

ITAM core capability is funded through the MDEP separately from the Army's Environmental program. The MDEP four digit code for ITAM is TATM. TATM may utilize Operations and Maintenance (OMA) funds for ITAM core areas such as LCTA. In addition, funds are also available from Operational Readiness (OPRED-MDEP) and WCCM sources. The goal that USAREUR tries to achieve regarding the distribution of funds spent on the individual components of the ITAM Program are as follows: 40% distributed between LCTA, TRI, and EA and 60% for LRAM. AG-Funds tend to be for smaller value amounts and are directed at projects with a high ecological or public relations value.
Command support for natural resources management programs within the training areas is determined by funding category:

- Command support for VENC, VENN or VEPP funds is through the 26th Area Support Group or Headquarters USAREUR; and
- Command support for OMA funds is through the 293rd Base Support Battalion, the 26th Area Support Group, and the Program Management Review (PMR)
- Command support for ITAM funds is through the 7th ATC and the Program Management Review (PMR) Board.

14.2 INTEGRATED TRAINING AREA MANAGEMENT (ITAM) PROGRAM

14.2.1 ITAM Overview

As the Department of Defense's premiere land force, the U.S. Army relies on land to achieve its training objectives and maintain readiness standards. Consequently, training lands are one of the U.S. Army's most valuable assets. In order to achieve its missions, the U.S. Army must have lands that are capable of supporting training and other functions indefinitely into the future. The ITAM Program was developed by the Department of the Army to integrate training and other mission requirements for land use with sound natural resources management of the land. Components of ITAM can be thought of as preventive maintenance of training land. Just as the U.S. Army conducts preventive maintenance programs to protect its substantial investment in tactical equipment, it also must invest in preventive maintenance of its training lands. The overall goal of the ITAM Program is to achieve optimum, sustainable use of training lands by inventorying and monitoring land condition, integrating training requirements with land capacity, providing for land rehabilitation and maintenance, and educating users about their impacts on natural resources. As such, the ITAM Program consists of the following four components:

- Land Condition Trend Analysis;
- Training Requirements Integration;
- Land Rehabilitation and Maintenance; and
- Environmental Awareness.

These programs and their status at the 293rd BSB Mannheim are briefly described below. Detailed information on these programs and the overall ITAM Program strategy is described in Integrated Training Area Management (ITAM) Program Strategy (Department of the Army, 1995). General information on the ITAM program, goals and objectives of the four ITAM components, can be accessed through the ITAM website: http://www.army-itam.com.

14.2.2 Responsibilities and Points of Contact

Overall responsibility for ITAM is assigned to the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), with specific responsibility residing in the Training Directorate (DAM-TR). Coordinating roles for the implementation of ITAM are assigned to the Directorate of Training (DOT) in the 7th Army Training Command in Grafenwoehr. The POC for the ITAM Program in USAREUR coordinates the ITAM Program implementation at the 293rd BSB Mannheim with the ITAM Coordinator of the Regional Training Support Center (RTSC) Mannheim, and the Range Control Manager at the Local Training Area. All POCs for the ITAM Program are listed in Table 13.3.1.

14.2.3 Regulatory Requirements and Enforcement

North Atlantic Treaty Organization - Status of Forces Agreement (NATO SOFA)

- **NATO SOFA. USAREUR and 7th Army.** (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998)

U.S. Department of Defense and U.S. Army Regulations and Guidance

- **AR 350-4 Integrated Training Area Management** (ITAM) (08 June 1998)
- **AR 210-21 Army Ranges and Training Land Program** (02 June 1997)
- **AR 350-1 Army Training** (01 September 1983)

14.2.4 Land Condition Trend Analysis (LCTA)

14.2.4.1 Program Overview and Status

LCTA is the component of the ITAM Program that provides for the collecting, inventorying, monitoring, managing, and analyzing of tabular and spatial data concerning land conditions on an installation. LCTA provides data needed to evaluate the capability of training lands to meet multiple use demands on a sustainable basis. It incorporates a relational database and GIS to support land use planning decision processes.

The LCTA methodology includes provisions for sample plot allocation, plot data sampling protocols for vegetation, wildlife, and soils, trend analysis of sampled data, and spatial analysis.

In 2002, a new approach was planned for the future implementation of LCTA by ITAM Managers. As a tool for land use management as well as for identifying potential risks or damages to the resources on training lands, it is essential that conservation and erosion control issues be addressed within the methodology. This new methodology will help to address site-specific conditions of each training area. An intensively used training area in a hilly terrain may encounter major erosion damage while other installations, e.g. the Lampertheim Training Area are less exposed to vehicle maneuver damage but comprise very sensitive areas that provide habitats for a number of rare species. By focusing on conservation issues, the Threatened and Endangered Species Survey, a requirement by the FGS-G, may be included in the LCTA monitoring. Details about the LCTA program can be obtained through the ITAM website
http://www.army-itam.com/components/lcta/overview.jsp.

No LCTA program has been implemented in the Lampertheim Training Area to date.

14.2.4.2 Inventorying and Monitoring

No contiguous survey or monitoring of the vegetation of the 293rd BSB Mannheim has taken place to date, although a TES study carried out in 1998 and 1999 provides information on the vegetation of the Lampertheim Training Area. No LCTA program has been conducted to date.

14.2.4.3 Standard Operating Procedures

As no field data collection for LCTA is performed at the 293rd BSB Mannheim, no SOPs are needed yet. General LCTA procedures are outlined in the *U.S. Army Land Condition Trend Analysis (LCTA) Plot Inventory Field Methods* (USACERL, 1992).

14.2.4.4 Management Issues and Concerns

No LCTA is currently performed at the 293rd BSB Mannheim. It is however essential, especially for an area located within a nature preserve, to have a permanent vegetation monitoring program. This program would support sustainable land use and minimize the risk of land degradation. Only knowledge of the land conditions and their changes over time will enable Natural Resources and Training personnel to make responsible decisions for land maintenance and rehabilitation.

14.2.4.5 Management Goals, Objectives and Resources Required for Implementation

<u>LCTA Goal #1</u> – Establishment of a site-specific LCTA monitoring program

LCTA monitoring is an essential requirement of the ITAM Program. Long-term monitoring should be established to fulfill ITAM requirements as described in AR 350-4. The overall objective is to use the LCTA's specialized knowledge, expertise and equipment to provide the Training Division with the support it needs to carry out and fulfill its mission.

Objectives

1. To detect changes and trends in maneuver lands.
2. To provide support for LRAM projects: monitoring training lands will help to locate and identify areas that are in need of rehabilitation.
3. To provide the Army with sound scientific data to respond to external and internal inquiries regarding the health of the training area resources and the Army's stewardship of its land.
4. To ensure maintenance of a comprehensive database for natural resources inventories that includes both conservation and erosion control data.

Resources Required for Implementation

In-house Staff: In house staff should be utilized for all aspects of this goal. Estimated effort: 1-2 weeks of the LCTA Coordinator's time for monitoring coordination. Estimate does not include analysis**.**

Contractors: Contractors should be utilized for all aspects of this project. Estimated effort: 2-3 months, depending on the number of plots to be monitored**.**

Equipment: The contractor provides all necessary equipment for LCTA plot monitoring.

Materials: No anticipated materials requirements are needed to complete this goal.

LCTA Goal #2 - Implementation of LCTA Graphic User Interface

The EMO at the Combat Maneuver Training Center Hohenfels has developed an LCTA database to convert the existing SQLBase system into MSAccess and has designed a graphic user interface (GUI) for intuitive access to the new system. Since the LCTA database/GUI development has been completed, every installation in USAREUR with an LCTA program has access to the program. Information regarding this program is available by contacting the USAREUR ITAM Program Manager shown in Table 13.3.1 page 4.

Objectives

1. To ensure integration and standardization of LCTA data within the Command.
2. To ensure that access to all plot monitoring datasets are fully integrated into the new system.

Resources Required for Implementation

In-house Staff: In-house staff should be utilized for all aspects of this goal. Estimated effort: 2-4 weeks of a Computer Specialist's time.
Contractors: No contractors are needed to complete this goal.
Equipment: No anticipated equipment requirements are needed to complete this goal.
Materials: No anticipated material requirements are needed to complete this goal.

14.2.4.6 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
1	Highest	Contractor
2	Important	In-house

14.2.4.7 Cost Saving Opportunities

An integration of the Threatened and Endangered Species Survey into the Land Condition and Trend Analysis will save costs by integrating two programs into one single program that could receive combined funding.

14.2.4.8 Implementation Schedule

The implementation schedule shown below is specific for the intended lifespan of the INRMP. It should be noted that schedules might change through adaptive management and the availability of funds.

	Year																			
Goal Number	**2003**				**2004**				**2005**				**2006**				**2007**			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																				
2																				

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

14.2.4.9 Implementation Funding Options

Generally, ITAM funds are provided for LCTA projects. However, a combined LCTA and TES monitoring program may be eligible for VENN funds.

14.2.4.10 Command Support

General information regarding command support for the ITAM Program can be found in Section 14.1. Additional information on command support for individual projects can be obtained from the Regional Training Support Center Mannheim.

14.2.5 Land Rehabilitation and Maintenance (LRAM)

14.2.5.1 Program Overview and Status

The Land Rehabilitation and Maintenance (LRAM) component is designed to repair and maintain land for long-term sustainable use in a cost effective manner. The component includes programming, planning, designing, and executing land rehabilitation and maintenance projects. The LRAM component uses best management practices for rehabilitation and maintenance projects and includes training area redesign and reconfiguration. Training area redesign and reconfiguration helps sustain the overall condition of the installation by avoiding impacts and permitting restoration to occur. The LCTA component determines the need for LRAM activities and the TRI component ensures that mission requirements are met while LRAM activities are accomplished. Further details about the LCTA program can be obtained from the ITAM website http://www.army-itam.com/components/lram/overview.jsp

The LRAM activities concentrate on retaining the soil. Disturbance caused by vehicle use is mainly restricted to the road network. However, the Lampertheim Training Area comprises valuable sand dunes with rare sand meadow vegetation that were nominated as FFH preserves. Vehicle use on these areas may even have a positive impact on the land. The disturbance caused by military training sustains the pioneer species of the sand meadows that could otherwise be displaced by shrubs and tree seedlings. Since tanks are not used in the LTA anymore, the removal of unwanted tree seedlings (especially pine) needs to be done manually.

The Training Support Division identified the following areas as requirements for the LRAM component within their Integrated Training Area Management Plan FY 03-08:

- Road repair 6f 6.2 miles of road.
- Erosion Control: Reseeding of TCT Range Floor.
- Area Development: Clearing of Underbrush.

- Erosion Prevention on noise and side berms at TCT.

14.2.5.2 Inventorying and Monitoring

Installation staff is permanently in the training area, thus inspections of structures, roads, etc., are conducted periodically as required.

14.2.5.3 Standard Operating Procedures

There are no SOPs for the LRAM component of the ITAM Program.

14.2.5.4 Management Issues and Concerns

The Lampertheim LTA consists of over 4,000 acres of prime training land. Currently, underbrush and down woody debris in the area prevents full effective and efficient usage of the training area by the units. Clearing the forest floor would make more area available to the units. Despite forest debris being an important factor for the renewal of the forest floor, training coordinators and forestry should agree on a compromise. An ITAM project may provide funding to pay forestry to remove logs or move them to temporary log decks before being removed. The logs could be chipped and used for various purposes.

The Lampertheim Training Area currently comprises ten designated bivouac sites. These areas were used for bivouacking for a long time period. Range control and training staff suggested rotating sites for bivouacking rather than using the same areas repeatedly. Bivouac sites should represent natural training terrain. Generally, rotation would allow the areas to regenerate during the periods they are not used. However, the local forester is concerned about the current state of the forest in the Lampertheim area. Various factors have already caused severe damage within the forest:

- Groundwater drawdown after heavy groundwater exploitation
- Fragmentation caused by roads, gas pipeline / former tank trail

- Unfavorable climatic conditions (warm and dry)
- Air immission
- May-bug infestation that limits seedling establishment

These stress factors limit tree growth and the establishment of a sound understory. The only species that grows well and develops a dense understory is the black cherry, which is of no commercial value. A compromise should be found on the issued mentioned above.

Various erosion issues exist at the Total Containment Trap. A sound-berm had been erected to prevent noise emission into the surrounding community. Presently it is just a mound of bare earth, but seeding of the berm would prevent the inevitable erosion and sustain its function. The side berms of the TCT also require erosion control measures. The weather continues to erode the berms.

Photograph 14.2.5.1 Bare noise berm is exposed to erosion

The range floor of the TCT also requires reseeding. It was the second-most used range throughout the region during the last two fiscal years, thus it was subject to a lot of troop traffic on the ground. Erosion, flooding, and adverse weather have created the need for topsoil and grass seed to be added. This will prevent bullets from ricocheting from rocks on

the bare ground.

The road network at the Lampertheim Training Area has deteriorated significantly within the past years and is in need of repair. Large and growing potholes pock the network creating a hazard for drivers, other vehicle occupants and vehicles.

Photograph 14.2.5.4.2 Road damage

14.2.5.5 Management Goals, Objectives, and Resources Required for Implementation

LRAM Goal #1 – Repair Road network

The frequent use of the trails by vehicles creates potholes and erosion. Thus, the ITAM coordinator applied for a total of 6.2 miles of road maintenance in FY 2004.

Objectives

1. Maintain a safe road network and road conditions that support the proper execution of the military mission.

Resources Required for Implementation

In-house Staff: No in-house staff is needed for this project.
Contractors: Contractors are needed to complete this goal**.** Estimated cost: $260,000
Equipment: Equipment will be provided by the contractor.
Materials: No materials are needed to complete this goal.

LRAM Goal #2 – Move side berm in M 203 Range

A berm extending from the west edge to the center of the M 203 Range currently limits the training. Moving this berm outwards as a side berm would enlarge the range and create an unrestricted use as a 500 yard range. The side berm would also act as a noise and visibility barrier. This project has not yet been applied for. The new berm should be seeded with indigenous seeds.

Objectives

1. To extend the M 203 Range
2. To enable an unrestricted execution of the military mission at the M 203 range.

Resources Required for Implementation

In-house Staff: In-house staff could be utilized for this project. Estimated effort: unknown.
Contractors: Contractors are needed to complete this goal**.** Estimated cost: unknown
Equipment: Equipment will be provided by the contractor.
Materials: No materials are needed to complete this goal.

LRAM Goal #3 – Soil deposition and re-seeding of the TCT range floor

Topsoil needs to be deposited on the deteriorated range floor. The soil is needed as a basis for grass seeds to establish roots. The new vegetation cover will prevent bullets from ricocheting from rocks on the bare ground.

Objectives

1. To provide a safe training environment
2. To prevent ricocheting.
3. To prevent further erosion of the topsoil.

Resources Required for Implementation

In-house Staff: In-house staff could be utilized for this project. Estimated effort: unknown.

Contractors: Contractors are needed to complete this goal**.** Estimated cost: $25,000

Equipment: Equipment will be provided by the contractor.

Materials: Seed and soil is needed to complete this goal.

LRAM Goal #4 – Erosion control at the TCT

A sound-berm had been erected to prevent noise emission into the surrounding community. Currently it is just a mound of bare earth, but seeding of the berm would prevent the inevitable erosion and sustain its function. The side berms of the TCT also require erosion control measures. Indigenous plant seeds should be used; therefore the project should be well coordinated with EMO.

Objectives

1. To provide a safe training environment
2. To protect berms from erosion
3. To ensure noise protection
4. To increase the proportion of native plants

Resources Required for Implementation

In-house Staff: In-house staff is needed for this project.

Contractors: Contractors are needed to complete this goal. Estimated cost: $25,000

Equipment: Equipment will be provided by the contractor.

Materials: A mixture of indigenous seeds is required to complete this goal.

14.2.5.6 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
1	Highest	Contractors
2	Important	Contractors
3	Highest	Contractors
4	Highest	Contractors/In-house

14.2.5.7 Cost Saving Opportunities

No cost savings opportunities have been identified for this section**.**

14.2.5.8 Implementation Schedule

The implementation schedule shown below is specific for the intended lifespan of the INRMP. It should be noted that schedules might change through adaptive management and the availability of funds.

	Year																			
Goal Number	**2003**				**2004**				**2005**				**2006**				**2007**			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																				
2																				
3																				
4																				

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

14.2.5.9 Implementation Funding Options

A variety of funding opportunities for the projects exists. For routine maintenance tasks, OMA funds will probably be provided. VENN funds might be available for re-seeding with indigenous seeds.

It might be possible to obtain funding from the Conservation Assistance Program (CAP). CAP is designed to give installation managers quick technical assistance. The projects must be able to be completed in a short time period and include erosion control, vegetation mapping, and wildlife management (USAEC, December 1997). The dollar ceiling per project is $7,500 - POC: Steve Getlin (e-mail: spgetlei@aec.apgea.army.mil).

14.2.5.10 Command Support

General information regarding command support for the ITAM Program can be found in Section 14.1. Additional information on command support for individual projects can be obtained from the ITAM coordinator at the RTSC Mannheim.

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14.2.6 Training Requirements Integration (TRI)

14.2.6.1 Program Overview and Status

The Training Requirements Integration (TRI) component is a decision-making and allocation process that is based on the concept of land carrying capacity/sustainment factors. The TRI component integrates the installation's training requirements for land use, derived from the Range and Training Land Program (RTLP) process, with the natural resources conditions of the installation's lands, derived from the LCTA and other natural resources management projects. TRI seeks to balance training requirements with natural resource conditions by selecting options that will sustain use of lands indefinitely to support training readiness. Through TRI, the installation operations/training staff, supported by the natural resources staff will identify options for allocating specific training requirements to specific land parcels.

TRI supports the Army's requirements for environmentally sustainable training lands. TRI improves coordination and facilitates cooperation, decision-making, and allocation by providing uniform information regarding land conditions, trends, and any necessary modification of requirements. The TRI goals are achieved when training, testing, and environmental requirements are balanced in the decision-making process.

Further details about the TRI program can be obtained from the ITAM website http://www.army-itam.com/components/tri/goals.jsp.

TRI is currently not implemented within the 293rd BSB Mannheim.

14.2.7 Environmental Awareness (EA)

14.2.7.1 Program Overview and Status

The Environmental Awareness (EA) component is designed to improve the land user's understanding of the impacts of his/her mission, mission training, and other activities on the environment. The program targets tactical units, leaders, soldiers, installation staff, and other installation users. It is established at installation level, but relies on environmental training provided by Army schools. Details about the Environmental Awareness component is available on the ITAM website http://www.army-itam.com/components/ea/overview.jsp.

The majority of the EA activities on the installation are provided by the 7th Army ITAM program. Environmental Awareness products include posters and playing card decks with environmental information. These products do not however include any of the special environmental features of the Lampertheim Training Area. The Training Area – comprising a high number of threatened and endangered species - deserves high awareness of features such as sand dunes and their vegetation. Furthermore, there is a concern for and public interest in military activities on ecologically valuable land such as the Lampertheim area. Awareness should also be given the special role of military activity, whose "disturbance" by vehicle use supports the sustainment of the sand meadow vegetation. In addition to the EA products, soldiers receive a briefing at the beginning of their deployment.

14.2.7.2 Standard Operating Procedures

There are no SOPs for the EA component of the ITAM Program.

14.2.7.3 Inventorying and Monitoring

The success of the ITAM Program projects is currently not monitored.

14.2.7.4 Management Issues and Concerns

The biggest concern of the EA component of ITAM is how to ensure that the soldiers are being informed of their environmental responsibilities in compliance with local regulations and procedures. Current EA products do not consider local site characteristics nor the nomination of future FFH areas.

14.2.7.5 Management Goals, Objectives, and Resources Required for Implementation

EA Goal #1 – Establish Nature Trail

The Lampertheim Training Area is a popular recreation area for residents of the agglomeration of the Mannheim/Ludwigshafen area. Walking and horseback-riding trails that form a network through the entire training area are highly used by residents. This may constitute both a safety hazard for the walkers and an interference with units in training. We thus suggest the establishment of a nature trail that will inform users and visitors about the unique features of the nature preserve while leading the recreational users into a less intensely used training section. Such a trail could be used for educational as well as recreational purposes; it could also be used as support for the soldiers' environmental briefings.

Objectives

1. To provide information on the rare species and landforms in the Lampertheim Training Area.
2. To canalize the high number of recreational users into a section of the training area that is less intensely used.

Resources Required for Implementation

In-house Staff: In-house staff of EMO and Range control should be utilized for the project planning and design process. Local conservation groups should be consulted. Estimated Effort: 6 weeks. Follow-up maintenance would require approximately 1 week a year. Estimated cost: $18,000

Contractors: Contractors are needed to complete this goal.

Equipment: No anticipated equipment requirements are needed to complete this goal.

Materials: Material will be needed for the construction of the interpretive signs. The use of existing trails would save construction costs.

14.2.7.6 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
1	Less important	In-house/ contractors

14.2.7.7 Cost Saving Opportunities

No cost savings opportunities have been identified for this section**.**

14.2.7.8 Implementation Schedule

The implementation schedule shown below is specific for the intended lifespan of the INRMP. It should be noted that schedules might change through adaptive management and the availability of funds.

	Year																			
Goal Number	**2003**				**2004**				**2005**				**2006**				**2007**			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1			▬	▬			▬				▬				▬				▬	

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

14.2.7.9 Implementation Funding Options

Besides ITAM money, funding might be provided through AG funds. These funds originate from gains through Army-wide Agriculture and Grazing Outleasing and support specific environmental projects.

14.2.7.10 Command Support

General information regarding command support for the ITAM Program can be found in Section 14.1. Additional information on command support for individual projects can be obtained from the ITAM coordinator, RTSC Mannheim.

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14.3 FOREST MANAGEMENT PROGRAM

14.3.1 Responsibilities and Points of Contact

The U.S. Army has no direct responsibility for forest management or hunting on the military installations in Germany, this authority rests with the host nation. Given that the Cantonment and Training Areas occupied by the 293rd BSB are owned by the Federal Republic of Germany (see Volume I, Section 2) with the exception for Lampertheim LTA, the responsibility for all forestry on the 293rd BSB rests with the Federal Forest Service (*Bundesforst*). The State of Hesse is the owner of Lampertheim. Other public or private owners are not relevant.

The organization and administration of the Bundesforst is the responsibility of the German Treasury Department (*Bundesfinanzministerium*). The Bundesforst is also responsible for all wildlife management, fishing and hunting. These responsibilities are authorized by § 16, Section 3 of the Treasury Administration Act (*Finanzverwaltungsgesetz*).

Germany is divided into three Forest Inspection Regions (*Forstinspektionen*) and further sub-divided into a total of 36 Forestry Offices (*Forstämter*) and 270 Forest Districts (*Reviere*). The Federal Forestry Offices (*Bundesforstämter*) are managed by a Forest Superintendent (*Bundesforstdirektor*). The Federal Forestry Office in Bad Kreuznach is responsible for all forest and wildlife management within the 293rd BSB. The organizational components of the Bundesforstamt are detailed in Table 14.3.1. The Bundesforstamt areas are marked by a white ring around the trunks of the trees on the corners of the areas. The area covered by each individual Federal Forestry Office is subdivided into several Forest Districts (*Forstreviere*). The Forest District Langenscheiderhof under Mr. Rodach is responsible for all federal forest on the land of the 293rd BSB.

The State Forest Office responsible for Lampertheim LTA is at Lampertheim. It is currently managed by Mr. Schwarz who is responsible for all forestry tasks on approximately 1665 hectares of Army Training Land.

Although the EMO has no jurisdiction over forest management, it does have an opportunity to integrate military requirements into forestry management policies and plans by holding occasional meetings with the relevant forest offices.

TABLE 14.3.1.

ORGANIZATIONAL COMPONENTS OF THE BUNDESFORSTVERWALTUNG

Forest Office /*Forstamt*	**Superintendent**/*Forstdirektor*	**Phone**
Rhein-Pfalz	Mr. Berg	0671/63579
Forest district/ *Revier*	**District Forester**/*Revierleiter*	
Hunsrück	Mr. Rodach	06345/919264
Fröhnerhof	Mr. Klein	0631/8923687

TABLE 14.3.2

FOREST RESPONSIBILITIES IN THE 293rd BSB

Installation	**District**	**Forester**	**Phone**
Federal Forest			
Benjamin Franklin Village	Langenscheider Hof	Mr. Rodach	06345/919264
Coleman Barracks	Langenscheider Hof	Mr. Rodach	06345/919264
Dannenfels Comm Sta	Fröhnerhof	Mr. Klein	0631/8923687
Edigheim Beacon Site	Langenscheider Hof	Mr. Rodach	06345/919264
Friedrichsfeld QM Services	Langenscheider Hof	Mr. Rodach	06345/919264
Friedrichsfeld Store Area	Langenscheider Hof	Mr. Rodach	06345/919264
Funari Barracks	Langenscheider Hof	Mr. Rodach	06345/919264
Grünstadt AAFES	Fröhnerhof	Mr. Klein	0631/8923687
Grünstadt Comm Sta	Fröhnerhof	Mr. Klein	0631/8923687
Mannheim Class III Point	Langenscheider Hof	Mr. Rodach	06345/919264
Spinelli Barracks	Langenscheider Hof	Mr. Rodach	06345/919264
Sullivan Barracks	Langenscheider Hof	Mr. Rodach	06345/919264
Taylor Barracks	Langenscheider Hof	Mr. Rodach	06345/919264
Turley Barracks	Langenscheider Hof	Mr. Rodach	06345/919264
Worms Auto Strip Yard	Fröhnerhof	Mr. Klein	0631/8923687
State Forest			
Lampertheim LTA	Lampertheim	Mr. Schepp	06206/9452-0

14.3.2 Regulatory Requirements and Enforcement

Key regulations and guidance associated with this management program are described below. These and other general regulations are discussed in Volume 1, Chapter 6. Some specific regulations and guidance are not listed in Volume 1, Chapter 6, because they are applicable only to this program.

North Atlantic Treaty Organization - Status of Forces Agreement (NATO-SOFA)

- **NATO SOFA** USAREUR and 7th Army. (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998).

U.S. Department of Defense and U.S. Army Regulations

- **Final Governing Standards Germany (FGS-G)** DoD. (March 1996).

European Community Laws and Guidance

- **Council Directive 79/409/EEC** on the conservation of wild birds (2 April 1979).
- **Council Directive 92/43/EEC** on the conservation of natural habitats and of wild fauna and flora (FFH Directive) (21 May 1992).

German Federal Laws

- **Bundesnaturschutzgesetz (BNatSchG)** *Federal Nature Protection Act.* (21 September 1998)
- **Bundeswaldgesetz (BWaldG)** *Federal Forest Act, in particular § 45 BWaldG. .* (18 September 1989)
- **NV Wald, Richtlinie für die Begründung von Nutzungsverhältnissen an Waldflächen für den Zweck der Verteidigung (§ 2 Landbeschaffungsgesetz**

(LBG), Novelle der NV Forst von 1961) *Regulation for use of forest areas for defense purposes.* (17 March 1982).

- **Bundesartenschutzverordnung (BArtSchV)** *Decree for the protection of wild animals and plants* (14 October 1999)

German State Laws

- **Baden-Württembergisches Landesjagdgesetz (LJG)** *State Law of Hunting in Baden-Wuerttemberg* (1 June1996)
- **Hessisches Waldgesetz (HWaldG)** Forest Law of Hesse (25 August 1985).
- **Hessisches Gesetz über Naturschutz und Landespflege (HNatG)** Hessian Nature Protection Law (19 September 1980).
- **Hessisches Jagdgesetz** State Law of Hunting in Hesse. (8 June 1998)
- **Landesforstgesetz von Rheinland-Pfalz** *State Forest Law of Rhineland-Palatinate.* (2 February 1977).
- **Landespflegegesetz Rheinland Pfalz (LPflG)** *State Law of Nature Protection and Care of the Landscape.* (12 October 1999)
- **Landeswaldgesetz (LWaldG)** von Baden-Württemberg *State Forest Law of Baden-Wuerttemberg* (30 June 1997)
- **Naturschutzgesetz (NSchG)** von Baden-Württemberg *State Law for Nature Conservation of Baden-Wuerttemberg* (30 June 1997)
- **Rheinland-Pfälzisches Jagdgesetz** State Law of Hunting in Rhineland-Palatinate. (5 May 1997)

Other Regulations

- **Erlaß des Bundesfinanzministers** Decree of the Secretary of the Treasury. (28 August 1995).

14.3.3 Program Overview and Status

The main goal of the *Bundesforstamt* and *Staatsforstamt* is to develop and maintain sustainable and ecologically sound forests. The forestry management practices of the forest offices should fulfill particular (military) interests and limit the negative impacts on the civilian surroundings. The natural functions of the forest and its transition zones with regard to soil, water economy, climate, landscape, plants and animals should be maintained and developed, and ecosystem development encouraged. These goals should be achieved within a balanced financial framework.

For the foresters from both authorities, the main tools used to achieve these goals are the following data collection activities:

- Forest Inventory (*Forsteinrichtung*);
- Forest Site Survey (*Standortkartierung*); and
- Forest Biotope Inventory (*Waldbiotopinventur*, Federal Forest only).

By law, the Bundesforstamt and the Staatsforstamt have to manage the populations of huntable wildlife based on an Animal Harvesting Plan. Hunting is only permitted with a license and a District Forester must be used as a guide during hunting. The Animal Harvesting Plan results are provided by both forest officers and licensed hunting guests.

No regular hunting activities are conducted on the installations of the 293rd BSB Mannheim administrated by the Federal Forest Service. In most installations, only small game can be hunted (if at all). Particularly if rabbit populations increase seriously, counteraction will be taken.

14.3.4 Inventorying and Monitoring

The Forest Inventory translates general goals into definitive management instructions applying to particular areas. The latest version of this inventory was completed in October 1996 for the Mannheim installations. This inventory is valid for 10 years. The basis for this

management manual is the Forest Site Survey. The survey maps the soils together with soil attributes such as type, moisture and other facets influencing the growth potential of the area. The latest available maps were completed in 1992.

No Forest Biotope Inventory (*Waldbiotopinventur*) has been carried out for any installation of the 293rd BSB. The Annual Forestry Plan is the main guide for the district forester's daily work; it establishes the management activities necessary to fulfill the goals of the 10-year Forest Management Regulation.

14.3.5 Standard Operating Procedures

The basis for agreement between the installation and the Bundesforst is the "NV Wald, Richtlinie für die Begründung von Nutzungsverhältnissen an Waldflächen für den Zweck der Verteidigung. (§ 2 Landbeschaffungsgesetz (LBG), Novelle der NV Forst von 1961). *Regulation for use of forest areas for defense purposes*. (17 March 1982)".

Meetings are conducted by the EMO with the Bundesforstamt and other authorities when their involvement is required. When necessary, the Oberforstinspektion Süd (Higher Forestry Administration Office) and USAREUR participate in these meetings as well as other authorities (e.g. representatives of the county and adjacent municipalities).

14.3.6 Management Issues and Concerns

Since the U.S. Army has no authority or responsibility for forest management, no definite statements can be made here.

Only one general wish from the chief of the Federal Forest Office at Bad Kreuznach Mr. Berg will be pointed out. He requests that all BSBs situated in his area of responsibility appoint one person as his single official POC. This POC should be authorized to deal with him on all interactions necessary between his office and the BSB. He proposes that this POC be the Chief of the EMO this being the person with whom he has the most contact. In

addition, he requests an annual planning meeting with his POC in order to get and give better information on upcoming projects and activities

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14.4 FISH AND WILDLIFE MANAGEMENT PROGRAM

Fish and wildlife management within the 293rd BSB Mannheim is administered by various different organizations. Wildlife management is primarily under the responsibility of the Landesforstamt and is therefore included in the Forest Management Program, Section 14.3**.** POC information for all relevant programs is given in Tables 13.3.1 and 13.3.2 page 4. Therefore, the rest of this section has been intentionally left blank.

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14.5 RARE, THREATENED AND ENDANGERED SPECIES MANAGEMENT PROGRAM

14.5.1 Responsibilities and Points of Contact

The responsibility for Threatened and Endangered Species (TES) Management rests with the EMO. All TES activities within the 293rd BSB must be coordinated with the respective landowners, the Federal Forest Service or the State Forest Service as well as with the relevant Nature Protection Authorities within the state of Baden-Wuerttemberg, Hesse, or Rhineland-Palatinate.

14.5.2 Regulatory Requirements and Enforcement

Key regulations and guidance associated with this management program are described below. Most of these and other general regulations are discussed in Volume 1, Chapter 6; some specific regulations and guidance are not listed in Volume 1, Chapter 6, because they are only applicable to this program.

North Atlantic Treaty Organization - Status of Forces Agreement (NATO SOFA)

- **NATO SOFA** USAREUR and 7th Army. (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998).

U.S. Department of Defense and U.S. Army Regulations

- **DoD Directive 4700.4** Natural *Resources Management Program* (24 January 1989).
- **DoD Instruction 4715.3** *Environmental Conservation Program* (3 May 1996).
- **Final Governing Standards Germany (FGS-G)** *DoD.* (March 1996).

U.S. Army Regulations and Guidance

- **AR 200-1** *Environmental Protection and Enhancement* (23 April 1990).
- **AR 200-3 Natural Resources** - *Land, Forest, and Wildlife Management* (25 February 1995).
- **Army Technical Manual 5-630** *Natural Resources Land Management* (July 1982).
- **USAREUR/7A Regulation 200-1** *USAREUR/7A Environmental Quality Program* (9 December 1993).

European Community Laws and Guidance

- **Council Directive 79/409/EEC** on the conservation of wild birds (2 April 1979).
- **Council Directive 92/43/EEC** on the conservation of natural habitats and of wild fauna and flora (FFH Directive) (21 May 1992).

German Federal Laws

- **Bundesnaturschutzgesetz (BNatSchG)** *Federal Nature Protection Act,* (21 September 1998) *in particular § 20c.*
- **Bundeswaldgesetz (BWaldG)** *Federal Forest Act, in particular § 45 BwaldG* (27 July 1984).
- **Gesetz zum Schutz der Kulturpflanzen, Pflanzenschutzgesetz (PflSchG)** *Plant Protection Law* (14 May 1998).
- **Bundesartenschutzverordnung (BArtSchV)** *Decree for the protection of wild animals and plants* (14 October 1999).

German State Laws

- **Baden-Württembergisches Landesjagdgesetz (LJG)** *State Law of Hunting in Baden-Wuerttemberg* (1 June1996)

- **Hessisches Forstgesetz (HeForstG**) *State Law of Forestry in Hesse* (10 November 1954)
- **Hessisches Gesetz über Naturschutz und Landschaftspflege (HeNatG)** *Hessian Nature Protection Law* (18 December 1997).
- **Hessisches Jagdgesetz (HJagdG)** *State Law of Hunting in Hesse* (12 October 1994)
- **Landesforstgesetz von Rheinland-Pfalz** *State Forest Law of Rhineland-Palatinate.* (2 February 1977).
- **Landespflegegesetz Rheinland-Pfalz (LPflG)** *State Law of Nature Protection and Care of the Landscape.* (12 October 1999)
- **Landeswaldgesetz (LWaldG)** von Baden-Württemberg *State Forest Law of Baden-Wuerttemberg* (30 June 1997)
- **Naturschutzgesetz (NSchG)** von Baden-Württemberg *State Law for Nature Conservation of Baden-Wuerttemberg* (30 June 1997)
- **Rheinland-Pfälzisches Jagdgesetz** *State Law of Hunting in Rhineland-Palatinate*. (5 May 1997)

Other References, Manuals, Books, and Guides

- **Die in Baden-Württemberg gefährdeten Vogelarten - "Rote Liste"** *Endangered Bird Species of Baden-Württemberg 'Red Data Book'* (1995).
- **"Rote Liste" der bestandsgefährdeten Schnecken und Muscheln Baden-Württembergs**. *Red Data Book of endangered Snails and Mussels of Baden-Wuerttemberg* (1982)**.**
- **Die Roten Listen der Amphibien und Reptilien Baden-Württembergs** *Red Data Books of endangered Amphibians and Reptiles of Baden-Wuerttemberg* (1998).
- **Rote Liste der Bienen Baden-Württembergs** *Red Data Book of Feral Bees of Baden-Wuerttemberg* (2000)
- **Rote Liste der in Baden-Württemberg gefährdeten Laufkäfer (Col., Carabidae s. lat)** *Red Data Book of endangered Tiger Beetles of Baden-Wuerttemberg* (1992)

- **Rote Liste der in Baden-Württemberg gefährdeten Tagfalter (Macrolepidoptera)** *Red Data Book of endangered Butterflies of Baden-Wuerttemberg* (1989)
- **Rote Liste der in Baden-Württemberg gefährdeten Nachtfalter (Macrolepidoptera)** *Red Data Book of endangered Moths of Baden-Wuerttemberg* (1994).
- **Rote Liste der Farn- und Samenpflanzen Baden-Württembergs** *Red Data Book of Ferns and Seed plants of Baden-Wuerttemberg* (1999)
- **Rote Liste der gefährdeten Tiere Deutschland** *Red Data Book of endangered Animals of Germany* (1998).
- **Rote Liste gefährdeter Pflanzen Deutschlands** *Red Data Book of endangered Plants of Germany* (1992).
- **Rote Liste der gefährdeten Biotoptypen der BRD** *Red Data Book of Endangered Biotope Types of the FRG* (1994).
- **Rote Liste der bestandsgefährdeten Biotoptypen von Rheinland-Pfalz** *Red Data Book of Biotope Types of Rhineland-Palatinate* (1990).
- **Rote Liste der bestandsgefährdeten Schmetterlinge in Rheinland-Pfalz.** *Red Data Book of endangered Butterflies of Rhineland-Palatinate* (1992).
- **Rote Liste der bestandsgefährdeten Wirbeltiere in Rheinland-Pfalz** *Red Data Book of endangered Vertebrates of Rhineland-Palatinate* (1987).
- **Rote Liste der bestandsgefährdeten Libellen in Rheinland-Pfalz** *Red Data Book of endangered Dragonflies of Rhineland-Palatinate* (1983).
- **Rote Liste der bestandsgefährdeten Farn- und Blütenpflanzen in Rheinland-Pfalz** *Red Data Book of endangered Ferns and Vascular Plants of Rhineland-Palatinate* (1988).
- **Rote Liste der bestandsgefährdeten Geradflügler in Rheinland-Pfalz** *Red Data Book of endangered Orthopters of Rhineland-Palatinate* (1991).
- **Rote Liste der Schnecken und Muscheln in Rheinland-Pfalz** *Red Data Book of endangered Snails and Mussels of Rhineland-Palatinate* (1994).
- **Rote Liste der Farn- und Samenpflanzen Hessens** *Red Data Book of Ferns and Vascular Plants of Hesse* (1996)
- **Rote Liste der Flechten Hessens** *Red Data Book of Lichens of Hesse* (1996)

- **Rote Liste der Großpilze Hessens** *Red Data Book of Mushrooms of Hesse* (2000)
- **Rote Liste der Ameisen Hessens** *Red Data Book of Ants of Hesse* (1996)
- **Rote Liste der Heuschrecken Hessens** *Red Data Book of Locusts of Hesse* (1996)
- **Rote Liste der Laufkäfer Hessens** *Red Data Book of Ground Beetles of Hesse* (1998)
- **Rote Liste der Libellen Hessens** *Red Data Book of Dragonflies of Hesse* (1996)
- **Rote Liste der Reptilien und Amphibien Hessens** *Red Data Book of Reptiles and Amphibians of Hesse* (1996).
- **Rote Liste der Säugetiere** *Red Data Book of Mammals of Hesse (1996)*
- **Rote Liste der Spinner und Schwärmer Hessens** *Red Data Book of Moths of Hesse* (1999)
- **Rote Liste der Tagfalter Hessens** *Red Data Book of Butterflies of Hesse* (1997).
- **Rote Liste der Vögel Hessens** *Red Data Book of Birds of Hesse* (1997)
- **Rote Liste der Widderchen Hessens** *Red Data Book of Burnets of Hesse* (1998).

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14.5.3 Program Overview and Status

Currently, there is no formal Rare, Threatened and Endangered Species Management Program at the installation. TES surveys on two selected areas were initiated by the U.S. Army and carried out in 1998 and 1999. The areas surveyed were Lampertheim LTA and the Airfield area in Coleman Barracks.

Though no complete TES survey for all installations has been conducted for the BSB, limited TES data is available from other surveys that have been conducted by German authorities on some of the installations. These surveys included all installations within the boundaries of the City of Mannheim, Lampertheim LTA, and Dannenfels Radio Communication site. Further details on the results of the existing TES surveys for these locations are provided in Section 14.5.4. Neither external literature information nor survey results have been organized into a consolidated and current TES management plan for the BSB.

14.5.4 Inventorying and Monitoring

Inventorying Flora

A comprehensive inventory of the flora of the 293rd BSB does not exist. German authorities compiled *biotope inventories* for the area of the City of Mannheim as well as for the Rhein-Neckar County in the early nineties, but the installations of the 293rd BSB were excluded. No information on the land of the US Army was thus recorded at the time.

In the late 90s, mapping inventorying of all areas within the City of Mannheim protected by *§ 24* of the NSchG was carried out in the following installations: Coleman Barracks, Sullivan Barracks, Funari Barracks, Taylor Barracks, Spinelli Barracks, Friedrichsfeld QM Services, and Friedrichsfeld Store Area. This mapping effort identified eight biotopes protected by §24:

- Dry sand meadows in Coleman Barracks, Friedrichsfeld QM Services, Friedrichsfeld Store Area, and Sullivan Barracks

- Sand dunes at Friedrichsfeld Store Area
- Hydrosere vegetation and ponds in Coleman Barracks and Taylor Barracks.

Some information on an area adjacent to Spinelli Barracks as well as on the sand dune at the southern end of Friedrichsfeld Store Area can be found in *'Grundlagenuntersuchung über Dünenstandorte und Sandrasenvegetation'* (1989). Some plant species and plant communities are listed for the neighborhood of these areas.

There is very little literary information on the Small Arms Range in the *'Schutzgebietskonzeption Hardtplatten'*, a development concept for the sand dune biotopes in the Rhine valley from Mannheim to Rastatt. The maps included show the airfield in Coleman Barracks as proposal for a nature reserve called "Sandfield Coleman Barracks". Few details could be found on the flora or vegetation of the actual area.

Information that is far more detailed can be found in the two *TES survey reports* on Coleman Barracks and Lampertheim LTA. These surveys comprised: vegetation/habitats, vascular plants, birds, ground beetles, locusts, and spiders. The reports additionally give an overview of the results on several other previous surveys on different subjects, e.g. butterflies, feral bees or mushrooms. Finally, detailed TES management recommendations are made for some - mostly small, but ecologically very important - parts of the areas.

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TABLE 14.5.1
STUDIES FOR FLORA & VEGETATION COMPLETED FOR THE 293rdBSB

Location/ Area	Date	Study Type	Scope of Study	Authority
Lampertheim LTA	1976	Floristic survey	Identification of all vascular plant species occurring on topographic map 1: 25,000 6417 Mannheim Nordost	Scientific Publication in Beiträge zur naturkundlichen Forschung in Südwestdeutschland
Benjamin Franklin Village Taylor Barracks Spinelli Barracks	1989	Botanical expert report on all sand dunes in the Rhine valley within Baden-Württemberg	Extensive botanical field survey on 134 recording locations, thorough description of these areas including a protection concept	Landesanstalt für Umweltschutz Karlsruhe
Lampertheim LTA	1994	Field survey	Butterflies and moths	Private survey by Mr. Kristal
Coleman Barracks Friedrichsfeld QM Services Friedrichsfeld Store Area Sullivan Barracks	1998	Mapping of areas protected by § 24 BNschG	Identification of §24 areas within the military installations on the land of the City of Mannheim	City of Mannheim Amt für Baurecht und Umweltschutz
Coleman Barracks	1998	TES Survey	Survey and mapping of vegetation, flora and selected fauna	DPW-EMO
Lampertheim LTA	1999	TES Survey	Survey and mapping of vegetation, flora and selected fauna	DPW-EMO
Coleman Barracks	1999	Development concept for the sand dune biotopes in the Rhine valley from Mannheim to Rastatt	Description of relevant natural regions, biotope types, TES species, incl. a protection plan	Bezirksstelle für Naturschutz und Landschaftspflege, Karlsruhe
Spinelli Barracks	2001	FFH Area	General information on	Landesanstalt für

		nomination form Mannheimer Sand 6517-302	the nominated FFH Area (oder Overview of the…)	Umweltschutz Baden Wuerttemberg
Grünstadt Radio Communication Site	2001	Bird Protection Area nomination form Haardtrand 6514-401	General information on the nominated FFH Area	Landesamt für Umweltschutz und Gewerbeaufsicht
Dannenfels Radio Communication Site	2001	FFH Area nomination form Donnersberg 6313-301	General information on the nominated FFH Area	Landesamt für Umweltschutz und Gewerbeaufsicht

The following section provides an overview of the flora that is known to exist on the 293rd BSB. For reasons stated above, detailed information is only available for Lampertheim LTA and the airfield area in Coleman Barracks.

On Sullivan Barracks and at Friedrichsfeld, two sand meadows were identified and mapped on each installation.

At Taylor Barracks, a wetland area was identified as §24 biotope. It is one of the best-sustained Cattail biotopes in Mannheim.

Coleman Barracks (Airfield)

The vegetation of this installation is dominated by oligotrophic vegetation units of dry sand-soils. The extensive area north of the runway is mainly characterized by dry slightly ruderalized grassland interspersed with several patches of dry sand meadows. In the north, these are particularly rich in mosses and lichens, indicative of the advanced age of these vegetation units. These are the largest sand meadows on the land of the City of Mannheim and therefore of particular ecological significance. This value is increased by the occurrence of a patchwork of several stages of sand meadow succession including several T&E species. Other areas around the bunkers show more or less heavily ruderalized grassland vegetation with many tall herbs. Moist to wet spots with hydrosere vegetation can be found in some

small places. Very sparse and ruderalized dry sand-meadows are protected by § *24 Nature Protection Law Baden Wuerttemberg* Naturschutzgesetz Baden-Württemberg (NatG).
Altogether, the open areas of the Coleman Barracks Airfield are of statewide importance from an ecological point of view and should be taken care of by all users.

The TES Report for this area contains a list of 122 vascular plant species including eight species listed in the Red Data Books and six on the early warning list. The numerous mosses and lichens mentioned in the TES Report for the northern dry sand meadow are not listed anywhere else. Future moss and lichen recording and determination should focus on this and other interesting places on the installation, because dry sand meadows usually contain larger numbers of endangered species from these groups than from the vascular plant group. Further details are provided in Section 14.5.4. 'Inventorying Threatened and Endangered Species' section.

Lampertheim LTA

It must be pointed out that none of the vegetation studies carried out on the LTA included any blanket vegetation mapping. This aspect has still not been surveyed for the majority of the forested areas. On the other hand, literature data already gives a good insight into the situation of the vegetation cover of the open areas.

These are mainly characterized by dry slightly ruderalized grassland interspersed with several patches of dry sand meadows. The most important plant communities (also listed in the FFH Directive as being of European interest) in these areas are:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (FFH Code 6210)
- Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festucetalia valesiaceae*) (FFH Subcode 6211)
- Open grassland with *Corynephorus* and *Agrostis* on continental dunes (FFH Code 2330)
- Xeric sand calcareous grasslands (*Koelerion glaucae*) (FFH Code *6120)

The above-mentioned vegetation units are also protected by § 24 Landscape Management Act of Rhineland-Palatinate, Landespflegegesetz Rheinland-Pfalz (LPflG).

The valuable and extensive dry sand meadows at Lampertheim LTA are among the largest in the entire Rhine-Neckar-Region and thus of state to nation-wide significance. A substantial part of the Lampertheim Training area has therefore been nominated under the FFH Directive of the EU as a Special Protected Area (SPA) of the NATURA 2000 System.

The literature contains a list of 141 vascular plant species found. Twelve of them are listed in the Red Data Books and 15 on the early warning lists. Most endangered species also require more or less open sandy areas and a dry warm climate. The present ecological condition of the location seems to be stable due to decreased military land use and stop of afforestation.

Though there has been a significant reduction in the size of the flora population in the past, the ecological value of the flora of this location is still considered to be of at least statewide importance. The nomination of particularly important parts of the LTA under the FFH Directive is therefore justified from a floristic point of view as well.

Literature data on mosses and lichens is also not available for this area, although it would probably be of high significance for the floristic valuation of the area.

Only the more generic description already given in Vol. 1 Chapter 5.8 is available for all other installations.

Inventorying Fauna

A comprehensive fauna inventory of the whole 293rd BSB does not exist. A number of studies have been undertaken by German nature protection authorities to examine fauna in some areas of the 293rd BSB and the surrounding area; these are listed in Table 14.5.2. This table also includes the TES Surveys for Coleman Barracks and Lampertheim LTA initiated by the US Army. These inventories include relatively extensive information on the fauna of the following installations: Lampertheim LTA and Coleman Barracks. Only highly summarized data on animals could be found for Grünstadt Communication site.

TABLE 14.5.2
STUDIES FOR FAUNA COMPLETED FOR THE 293rd BSB

Location/ Area	Date	Study Type	Scope of Study	Authority
Lampertheim LTA	1994	Field survey	Butterflies and moths	Private survey by Mr. Kristal
Lampertheim LTA	1994	Zoological field survey on several animal groups	Documentation of effects of maybug-controlling on other insect groups	Hessische Landesanstalt für Forsteinrichtung etc.
Lampertheim LTA	1996	Zoological field survey on butterflies	Documentation of effects of gipsy moth-controlling on butterflies	Hessische Landesanstalt für Forsteinrichtung etc.
Lampertheim LTA	1996	Zoological field survey on several animal groups	Documentation of effects of gipsy moth-controlling on other insect groups	Hessische Landesanstalt für Forsteinrichtung etc.
Lampertheim LTA	1996	Bird survey	Results of a 6 year study on birds	Private survey by Mr. Haaß
Lampertheim LTA	1996	Beetle survey	Detailed survey on beetles	Untere Naturschutzbehörde Kreis Heppenheim
Lampertheim LTA	1997	Floristic TES protection concept	Occurrences of the Sand Silvercrack in the "Bergheim District"	Umweltamt Stadt Darmstadt

Location/ Area	Date	Study Type	Scope of Study	Authority
Coleman Barracks	1998	TES survey	Survey and mapping of vegetation, flora and selected fauna	DPW-EMO
Lampertheim LTA	1999	TES Survey	Survey and mapping of vegetation, flora and selected fauna	DPW-EMO
Coleman Barracks	1999	Development concept for the sand dune biotopes in the Rhine valley from Mannheim to Rastatt	Description of relevant natural regions, biotope types, TES species, incl. a protection plan	Bezirksstelle für Naturschutz und Landschaftspflege, Karlsruhe
Grünstadt Radio Communication Site	2001	Bird Protection Area nomination form Haardtrand 6514-401	General information on the nominated FFH Area	Landesamt für Umweltschutz und Gewerbeaufsicht
Dannenfels Radio Communication Site	2001	FFH Area nomination form Donnersberg 6313-301	General information on the nominated FFH Area	Landesamt für Umweltschutz und Gewerbeaufsicht

This section provides an overview of the species that are known to exist at the 293rd BSB. For reasons stated above, detailed information is only available for Lampertheim LTA and Coleman Barracks. Only some possibly occurring T&E animal species are known for Grünstadt Communication Site from the NATURA 2000 nomination form for this area. For all other installations, only the more generic description (given in Vol. 1 Chapter 5.8) is available.

Coleman Barracks

The 1998 survey on TES animal species on this installation focused primarily on four animal groups: birds, ground beetles, locusts, and spiders. These groups were surveyed on 4 to 7

individual recording locations representing the most interesting habitat types for these animals. The following results were obtained:

TABLE 14.5.3
NUMBER OF SPECIES PER ANIMAL GROUP
FOUND AT COLEMAN BARRACKS

Group	**Total Species**	**Total Red Data Book**	**Early Warning List**
Birds	45	9	10
Ground beetles	36	10	3
Locusts	10	5	-
Spiders	112	18	-
Additional findings			
Amphibians & Reptiles	3	2	-
Total	**190**	**44**	**13**

This installation only has relatively few different but very specialized habitat types. These numbers show that a relatively large number of species from all animals groups investigated could be identified. Of additional significance is the fact that at least severely endangered species were also found for all groups. Dry sand biotopes are essential for their survival. The area is thus at least of statewide ecological significance from a zoological point of view.
Note: No surveys have been carried out on animal groups which are very important on sand habitats, e.g. ants, butterflies, feral bees incl. wasps.

Lampertheim LTA

The latest survey on TES animal species on the land of this installation focused primarily on the same four animal groups as at Coleman Barracks: birds, ground beetles, locusts, and spiders. These groups were surveyed on 8 to 10 individual recording locations representing the most interesting habitat types for these animals. No recordings were carried out in the forests during the TES survey. The results of other previous surveys of varying intensity on

beetles, butterflies, and feral bees were also included in the following table 14.5.4

TABLE 14.5.4
NUMBER OF SPECIES PER ANIMAL GROUP
FOUND AT LAMPERTHEIM LTA

Group	**Total Species**	**Total Red List**
Birds	41	3
Beetles (several surveys)	359	94
Butterflies (incl. Moths)	232	11
Feral bees & Wasps	unknown	9
Locusts	12	10
Spiders	113	29
Additional findings		
Amphibians & Reptiles	4	3
Total	**761**	**160**

This installation only has relatively few different but very specialized habitat types. These numbers show that a large number of species from most animals groups investigated could however be identified. Of additional significance is the fact that at least severely endangered species were found for all groups here too. Dry sand biotopes are essential for the survival of most of these species. The area is thus of nationwide ecological significance from a zoological point of view.

Note: Of particular interest is the fact that a list of butterflies summarizing findings over a twenty-year period (1972-1992 - by Mr. P. Kristal) contains a total of 527 butterfly species for the Lampertheim LTA including diurnal and nocturnal species. The survey on butterflies in 1994, after insecticides had been used in the forested areas of the LTA, could however identify only 232 species. It would therefore be exceptionally interesting to determine whether the butterfly population is recovering, particularly when bearing in mind the FFH status of the area. No, or only insufficient surveys, have been carried out on animal groups which are particularly important on sand habitats, e.g. ants and feral bees incl. wasps.

Inventorying Threatened and Endangered Species

This section provides some details on the important flora and fauna found at the 293rd BSB Mannheim. Detailed information on flora and/or fauna is available only for Lampertheim LTA and Coleman Barracks. Some possibly occurring T&E animal species are only known for Grünstadt Communication Site from the NATURA 2000 nomination form for this area. A little information on T&E species is obtainable for Sullivan Barracks, Friedrichsfeld Store Area, and Friedrichsfeld QM Services from the §24 mapping of these installations. Therefore only these installations are discussed in detail. A synopsis of the results of the different surveys with regard to TES plant and animal species is provided in Table 14.5.5. The majority of these species are found at Lampertheim-LTA.

Sullivan Barracks, Friedrichsfeld Store Area, and Friedrichsfeld QM Services

The §24 sand biotopes in these installations were identified by the occurrence of grey hair-grass (*Corynephorus canescens*) and rat's-tail fescue (*Vulpia myuros*). Of particular significance is the evidence of the sand-catchfly (*Silene conica*) at Sullivan Barracks. It is listed in Category 2 (i.e. severely endangered) in both the German Red Data Book as well as in the Red Data Book of Baden-Württemberg. In 1988, eight Red Data Book plant species were even identified (by Breunig and Koenig) on the small dune at the southern tip of the Friedrichsfeld Store Area. The most endangered were the sand-strawflower (*Helichrysum arenaria*), dune hair-grass (*Koeleria glauca*) and sand thyme (*Thymus serpyllum*), all classified as severely endangered in the red Data Books. A control survey of these sand habitats would be of exceptional interest after 4 and 14 years respectively.

Grünstadt Communication Site

This installation is located in the middle of an area nominated as a bird protection area in the NATURA 2000 system. Thirteen T&E bird species are known to occur in the entire nominated area. Due to the structure of the Grünstadt Communication Site - with partly open grasslands between bush and tree overgrowth on not agriculturally used land - it is highly

probable that one or more of these severely endangered species might occur or even breed on this site. A TES survey on birds would fill this data gap.

Photograph 14.5.5 View over Grünstadt Communication site

Coleman Barracks

A comprehensive overview of the TES survey data illustrates the TES situation at Coleman Barracks as follows:

TABLE 14.5.5

TES SPECIES AT COLEMAN BARRACKS

G – Red Data Book of Germany
BW– Red Data Book of Baden-Wuerttemberg

SCIENTIFIC NAME	COMMON NAME	G	BW
VASCULAR PLANTS			
Aira caryophyllea	Silver hair-grass		3
Arabidopsis thaliana	Thale cress		4
Corynephorus canescens	Grey hair-grass		3
Hypochoeris glabra	Smooth cat's-ear	2	2
Medicago minima	Bur medick	3	3
Onopordum acanthium	Cotton thistle		3
Sagina micropetala	Annual pearlwort		3
Spergula morisonii	Unknown		2
BIRDS			
Circus aeruginosus	Marsh Harrier	-	1
Miliaria calandra	Corn Bunting	2	2
Milvus migrans	Black kite	-	3
Perdix perdix	Partridge	2	2
Phalacrocorax carbo	Cormorant	-	3/II.2
Saxicola rubetra	Whinchat	3	2
Sylvia communis	Whitethroat	V	3
Tyto alba	Barn Owl	3	5
Vanellus vanellus	Lapwing	3	5
Ground Beetles			
Harpalus autumnalis	Black-lustred ground beetle ssp.	3	3
Harpalus rufipalpis	Black-lustred ground beetle ssp.		3
Harpalus serripes	Black-lustred ground beetle ssp.	V*	3
Masoreus wetterhalli	Unknown	3	1
Poecilus lepidus	Unknown	V*	3
Syntomus foveatus	Unknown		2
LOCUSTS			
Chorthippus dorsatus	Meadow grasshopper	-	3
Chorthippus mollis	Lesser field grasshopper	-	3

SCIENTIFIC NAME	COMMON NAME	G	BW
Myrmeleotettix maculatus	Mottled grasshopper	-	3
Oecanthus pellucens	European tree cricket	-	2
Oedipoda caerulescens	Blue-winged grasshopper	3	3
Platycleis albopunctata	Grey bushcricket	3	-
SPIDERS			
Acartauchenius scurrilis	Unknown	3	3
Agroeca cupreus	Unknown	3	-
Alopecosa accentuata	Unknown	-	3
Altella lucida	Unknown	3	3
Centromerus capucinus	Unknown	3	-
Cheiracanthium punctorium	Unknown	3	2
Drassyllus lutetianus	Unknown	-	3
Haplodrassus dalmatensis	Unknown	3	3
Neoscona adianta	Unknown	3	3
Scotina celans	Unknown	3	-
Talavera aequipes	Unknown	-	3
Trachyzelotes pedestris	Unknown	3	3
Trichopterna cito	Unknown	3	3
Trochosa robusta	Unknown	3	3
Xysticus striatipes	Unknown	3	-
Zelotes electus	Unknown	-	2
Zelotes longipes	Unknown	3	-

This table sums up to 47 more or less severely threatened and endangered species, which were identified in a survey on five species groups only. This result gives the Coleman Barracks, particularly the airfield area and other spots in the northern part of the installation, a statewide ecological significance. An additional survey on species groups highly characteristic of dry sand meadows (e.g. mosses and lichens, ants, feral bees & wasps, and moths) would very probably result in the identification of many more threatened and endangered species on the installation.

Lampertheim LTA

The TES situation at Lampertheim LTA is first presented in a table containing all Red Data Book species actually found on the installation. (Species on the Early Warning Lists Category V have been left out.)

TABLE 14.5.5

TES SPECIES AT LAMPERTHEIM LTA

G – Red Data Book of Germany
HE– Red Data Book of Baden-Wuerttemberg

SCIENTIFIC NAME	COMMON NAME		
VASCULAR PLANTS		**G**	**HE**
Anthericum liliago	St. Bernard's Lily		3
Anthericum ramoum	Branched Anthericum		3
Corynephorus canescens	Grey Hair-grass		3
Euphorbia seguierana	Seguier's Spurge	3	3
Filago arvensis	Field Cudweed	3	3
Helichrysum arenarium	Sand Strawflower	3	2
Jurinea cyanoides	Sand Silvercrack FFH II	1	1
Koeleria glauca	Dune Hair-grass	2	2
Medicago minima	Bur Medick	3	3
Potentilla incana	Sand Cinquefoil		3
Silene otites	Spanish Catchfly	3	2
Spergula morisonii	Spring Spurrey		3
Teesdalea nudicaulis	Shepherd's Cress		3
Thymus serpyllum	Breckland Thyme		2
FUNGI			
Agrocybe pusiola	Unknown	2	2
Bovista tomentosa	Unknown	2	2
Geastrum minimum	Unknown	3	2
Lycoperdon ericaeum	Unknown	3	2
Sepultaria arenicola	Unknown		3
Tulostoma fimbriatum	Unknown	3	3
AMPHIBIANS			
Bufo calamita	Natterjack FFH IV	3	2
BIRDS			
Anthus campestris	Tawny pipit FFH I	2	2

SCIENTIFIC NAME	COMMON NAME		
Delichon urbica	House Martin	-	3
Jynx torquilla	Wryneck	2	1
Lullula arborea	Wood Lark-FFH-I	3	1
Upups epopa	Hoopoe	1	1
BEETLES			
Amara fulva	Sun beetle ssp.		2
Broscus cephalotes	Unknown	V	1
Calathus ambiguus	Unknown		3
Calathus erratus	Unknown		3
Cerambyx cerdo	Great capricorn beetle FFH I	1	1
Cicindela hybrida	Dune tiger beetle		3
Harpalus anxius	Black-lustred ground beetle ssp.		3
Harpalus autumnalis	Black-lustred ground beetle ssp.	3	2
Harpalus flavescens	Black-lustred ground beetle ssp.	3	1
Harpalus melancholicus	Black-lustred ground beetle ssp.	2	1
Harpalus pumilus	Black-lustred ground beetle ssp.	V	3
Harpalus serripes	Black-lustred ground beetle ssp.	V	3
Harpalus smaragdinus	Black-lustred ground beetle ssp.		3
Masoreus wetterhalli	Unknown	3	1
Notiophilus aquaticus	Unknown	V	3
Poecilus lepidus	Unknown	V	3
Protaetia aeruginosa	Unknown	1	1
Pseudoophonus calceatus	Unknown	3	2
Pseudoophonus griseus	Unknown	V	3
Syntomus foveatus	Unknown		2
FERAL BEES			
Ammobates punctatus	Unknown	2	1
Anthophora bimaculata	Flower Bees, spec.	3	2
Nomoides minutissimus	Unknown	2	1
LOCUSTS			**HE**
Calliptamus italicus	Italian locust	1	! 1
Gryllus campestris	Field cricket	3	-
Metrioptera bicolor	Two-colored bushcricket	-	3
Oecanthus pellucens	European tree cricket	-	3

SCIENTIFIC NAME	COMMON NAME		
Oedipoda caerulescens	Blue-winged grasshopper	3	3
Oedipoda germanica	Red-winged Grasshopper	1	! 1
Platycleis albopunctata	Grey bushcricket	3	2
Sphingonotus caerulans	Blue-winged locust	2	1
REPTILES			
Coronella austriaca	Smooth snake FFH IV	2	3
Lacerta agilis	Sand lizard FFH IV	3	3
SPIDERS			**BW**
Agroeca lusatica	Unknown	3	3
Alopecosa accentuata	Unknown	-	3
Alopecosa cursor	Unknown	2	2
Arctosa perita	Unknown	3	2
Callilepis nocturna	Unknown	3	3
Ceratinopsis romana	Unknown	3	3
Cheiracanthium campestre	Unknown	2	-
Cheiracanthium pennyi	Unknown	2	-
Cheiracanthium virescens	Unknown	3	3
Dipoena coracina	Unknown	3	3
Haplodrassus dalmatensis	Unknown	3	3
Hypsosinga albovittata	Unknown	3	3
Micaria dives	Unknown	2	-
Neoscona adianta	Unknown	3	3
Pellenes nigrociliatus	Unknown	2	2
Pellenes tripunctatus	Unknown	3	3
Phaeocedus braccatus	Unknown	2	3
Sitticus saltator	Unknown	3	3
Steatoda albomaculata	Unknown	3	3
Synageles hilarulus	Unknown	3	3

SCIENTIFIC NAME	COMMON NAME		
Talavera aequipes	Unknown	-	3
Thomisus onustus	Unknown	3	-
Titanoeca psammophila	Unknown	1	-
Trachyzelotes pedestris	Unknown	3	3
Trichopterna cito	Unknown	3	3
Trochosa robusta	Unknown	3	3
Zelotes electus	Unknown	-	2
Zelotes erebeus	Unknown	3	3
Zelotes longipes	Unknown	3	-
WASPS			**HE**
Harpactus elegans	Digger Wasps, spec.	3	1
Holopyga fervida	Cuckoo Wasps, spec.	2	1

This table sums up to 84 more or less severely threatened and endangered species, most of which were identified in a TES survey on 5 species groups only, i.e. a large number of T&E species from the groups investigated could be identified. Six species are even listed in the annexes of the FFH and/or (or) Bird Directive of the EU respectively. Of additional significance is the fact that some severely endangered species were found for all groups here too. Dry sand biotopes are essential for the survival of most of these species. The area is thus of state to nationwide ecological significance from an ecological point of view.

TABLE 14.5.6
NUMBER OF RED DATA BOOK SPECIES IDENTIFIED AT THE 293rd BSB
(Results of secondary data research)

Group	Red Data Book Species	Category 0, 1, and 2 Red Data Book Species	Importance
Vascular Plants	32	11	State
Fungi	6	4	Regional
Amphibians	2	1	Local
Birds	31	14	National
Ground Beetles	20	6	State
Butterflies & Moths	11	2	Local
Feral Bees & Wasps	5	5	Regional
Locusts	13	6	National
Reptiles	3	1	Regional
Spiders	35	10	Statewide
Xylobiontic Beetles	85	45	Nationwide
Total	**241**	**103**	**National**

Summary:

Due to the lack of comprehensive data for all other locations, only Lampertheim LTA and Coleman Barracks (Airfield) can be defined as highly important from an ecological point of view.

Grünstadt Communication Station is highly likely to be of some significance for birds.

Biotopes of §24 status have been identified within Sullivan Barracks, Taylor Barracks, and Friedrichsfeld QM Services; these give the locations a local to regional ecological significance.

Funari Barracks, Spinelli Barracks, Turley Barracks, and Benjamin Franklin Village are of potential ecological significance.

The sand biotopes at Coleman Barracks (Airfield) and Lampertheim LTA provide a complex habitat of statewide to nationwide importance for the survival of more than a hundred endangered species for the following reasons:

- Unique geological formations coupled with the occurrence of a rare climate type, combined to form an ideal sand dune landscape with a high degree of biodiversity.
- The different sand biotopes are still of such an extensive size that they enable the survival of sound populations of a large number of plant and animal species which no longer exist in the surrounding land utilized by the civilian population.
- Some military training activities create additional ecological conditions that are favorable to certain species notably amphibians.
- For some years, disturbances by military activities have only been of short duration and low intensity.
- Forestry activities no longer focus entirely on economic return. This is due to the limitations associated with military training activities, as well as an improved insight into ecological values.

Parts of both areas have been nominated as nature reserves and FFH areas respectively in the NATURA 2000-system, under the FFH Directive and the Birds Directive of the EU. The designation as SPA officially implies that the U.S. Army must produce an FFH management plan. The DPW-EMO is responsible for carrying out the relevant measures, and has to install an FFH/TES monitoring program. Furthermore, the DPW-EMO must report on the current ecological situation of the area, as well as all goals accomplished, to the EU via the German Federal Authorities every 6 years. The overall ecological valuation of the Lampertheim LTA - one of the best-preserved sand dune biotopes in the whole Rhine-Region - leads to a statewide significance at least. In some aspects, this classification may even reach national level.

Monitoring

Currently there is no formal monitoring program of TES management activities at the 293rd BSB. In order to identify the potential impact of future activities and other factors on TES within the 293rd BSB, it is essential that the BSB implements a monitoring system, which is responsive to changing situations and fulfills future requirements under the FFH Directive.

14.5.5 Standard Operating Procedures

There are no formal SOPs for TES management activities or monitoring efforts at the 293rd BSB. Such SOPs would complement a rare, threatened and endangered species management plan as implied in AR 200-3 *Natural Resources - Land, Forest and Wildlife Management*.

14.5.6 Management Issues and Concerns

Five important steps are required for a successful TES Management Program.

The first is the completion of a TES Gap Analysis. The main task of this analysis should be the consolidation of all existing different reports, maps and databases containing information on TES and vegetation into one comprehensive GIS and database system. This would allow the determination of serious information gaps as well as the compilation of a current list of TES species for the entire BSB.

Second step: identified information gaps should then be closed by carrying out a baseline inventory on plant and animal groups at installations selected and pointed out during the Gap Analysis. The results of this analysis should include surveys on mosses and lichens, ants, bees & wasps, and moths on the important sand biotopes.

The existing studies, reports and concepts include many management recommendations, originating from as many as three different expert reports. They are thus diversely structured

and differ considerably, especially as far as the following aspects are concerned:

- precision of the spatial allocation
- quality of the description of the to-be-conducted tasks
- priority grading
- evaluation of the affected stands
- targets

None of the investigations contains any form of cost estimates or implementation schedules.

These recommendations can only form the basis of a detailed TES & FFH Management Plan that should include a GIS-based database containing all the information needed to plan, calculate, carry out, and control all necessary management measures in the future.

The third step therefore concerns the consolidation of results and management recommendations from previous work into a single TES Management Program for the entire BSB.

This consolidated document and GIS-database system would provide the installation commander and the EMO with comprehensive and effective steps to protect, enhance, and monitor known TES and their habitats while ensuring good stewardship of the Training Area. This action is considered to be urgent as some of the identified species populations are declining.

Parts of the Lampertheim Training Area, Dannenfels Communication site, and Grünstadt Communication site have been reported to the European Union as areas of European interest due to their unique environment, and are nominated as a Special Area of Conservation (also known as a Natura 2000 site) under the FFH-Directive. The 293rd BSB Mannheim should be responsible for the management and the monitoring of these sites as designated areas of

ecological importance. Therefore the TES Goals explained below, would also ensure that the 293rd BSB Mannheim was in compliance with all requirements of the FFH-Directive.

As all activities related to TES and FFH issues have to be carried out in cooperation with the relevant local authorities (Forest services, Nature protection authorities, local experts, etc.), it is recommended - as fourth goal – that a Rare, Threatened and Endangered Species and FFH Working Group be established.

Last step: a TES Monitoring Program, which allows observation of future TES species development, needs to be implemented to keep the list of TES species up-to-date. This program should be able to handle all FFH monitoring activities necessary in the future as well.

14.5.7 Management Goals, Objectives, and Resources Required for Implementation

TES Goal #1 –TES Data consolidation and TES Gap Analysis

Existing TES surveys have employed different methods to achieve differing objectives. These data need to be brought together to produce a consolidated report and database for the entire BSB. Such a consolidated report will: reduce the amount of re-surveying work required in the future and enable more informed biotope-specific management recommendations to be made.

The vegetation mapping and databases completed through the previous TES surveys should also be consolidated into a single GIS data layer. A single data layer would furthermore provide a basis for multi-functional field monitoring.

Once the consolidated GIS-Database-system exists a TES GAP Analysis identifying missing but necessary data on sensitive species or their habitats can easily be carried out.

Objectives

1. To create a current list of threatened and endangered species occurring on the site as required by the FGS - G (DoD, March 1996).

2. To consolidate all TES surveys, particularly the species lists and the vegetation mappings.
3. To provide concise information on the occurrence of TES species and of sensitive habitats to In-House staff.

Resources Required for Implementation

In-house Staff: Staff time will be required for contract administration with specialist contractors and to ensure the feasibility of management recommendations.

Contractors: A contractor should be utilized to prepare the consolidated report and the TES Management Plan. Estimated cost: $60,000.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

TES Goal #2 - Complete a Baseline Inventory of Threatened and Endangered Species

The known studies regarding TES species, vegetation and habitats do not yet provide a detailed and completed picture of the ecology of the whole of the 293rd BSB. A final TES survey is required to provide a sufficient baseline inventory for future management activities. This further survey should target on areas only where the effort is likely to reveal important information regarding TES species. With a completed baseline survey, the installation will be able to fill the information gaps identified in the TES GAP Analysis and make better informed decisions about future land management practices.

Objectives

1. To create a current list of the threatened and endangered species occurring on the 293rd BSB lands as required by the FGS-G (DoD, March 1996). This list, based on the inventory for rare, threatened, and endangered species, should include inventory lists identifying Red Data Book status in Rhineland-Palatinate and Germany.
2. To compile vegetation maps, plant surveys, and animal inventories for those installations where information gaps have been identified in the Gap Analysis.

Resources Required for Implementation

In-house Staff: Provide available information to the contractor, participation in meetings and managing and coordinating the contractors' work. Estimated Effort: 1 week.

Contractors: One contractor should be used to carry out all field surveys and prepare the respective reports including GIS for all data found to ensure methodological consistency in the different modules of the TES Program. Estimated cost: Depends on the TES Gap Analysis; an estimate could be $50.000.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

TES Goal #3 - TES Management Plan including FFH requirements

Based on the TES GIS and database system consolidated in the previous steps all identified necessary management recommendations should be combined in a TES Management Plan. This plan should show all actions necessary in the future, cost estimates, and responsibilities, as well as the relevant spatial information. Therefore it has to be a dynamic GIS based tool. Part of Lampertheim LTA is nominated as a future FFH area. Article 6.1 of the FFH Directive asks for the development of an FFH Management Plan[1] The entire nominated FFH area "Viernheimer Waldheide und angrenzende Flächen" (#6417-303) is significantly larger than the U.S. Army installation, thus cooperation with all relevant host nation agencies would be mandatory. It is hereby proposed that the U.S. Army develops a separate Management Plan in accordance with the goals for the whole FFH area using the already existing management recommendations. Such a consolidated TES & FFH Management system would: reduce the amount of re-surveying work required and enable more informed TES &

[1] "1. For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites."

FFH specific management decisions to be made. Grünstadt communication site and Dannenfels communication site are also parts of FFH areas. As these installations only cover less than 0.1% of the whole FFH areas it is recommended not to develop a separate management plan but to cooperate with the German authorities on the development of such plans.

Objectives

1. To provide short- and long-term management recommendations to enable the integration of TES management issues into mission requirements. These recommendations should consider biotope types (e.g. oligotrophic grassland) and natural or man-made structures (e.g. fire ponds).
2. To provide concise individual management recommendations to In-House staff.
3. To be in compliance with the Council Directives 79/409/EEC on the conservation of wild birds (2 April 1979) and 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (FFH Directive) (21 May 1992).
4. To consolidate all FFH activities and the management recommendations for FFH habitat types and individual species.

Resources Required for Implementation

In-house Staff: Staff time will be required for contract administration with specialist contractors and to ensure the feasibility of management recommendations. Staff must also be utilized to determine which of the proposed management measures are both compatible with the mission and economically feasible.

Contractors: A contractor should be utilized to prepare the consolidated report and the TES Management Plan. Estimated cost: $40,000.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

TES Goal #4 - Establish a Rare, Threatened and Endangered Species and FFH Working Group

A TES/FFH working group comprising relevant agencies and experts should be set up to facilitate clear communications and the establishment of common goals. The key stakeholders should include representatives from Training Support, EMO, Federal and State Forest Service, German nature conservation authorities and scientific specialists including at least one botanist and one zoologist. This group would provide a forum to discuss and agree on management recommendations prior to implementation, ensuring that both natural resources and military interests are considered. It would also encourage the early identification of potential problem areas. Following agreement on specific management activities, the Working Group could provide a forum for scheduling the management program.

Objectives

1. To ensure clear communication between all stakeholder groups.
2. To save time and money in the management of TES and FFH by providing a mechanism for different agencies to agree and co-operate.
3. To ensure that any decisions taken will not result in the net loss of training capability as described in AR 350-4 and DA Pam 350-4.

Resources Required for Implementation

In-house Staff: Providing of all necessary and available information to the contractor, participation in all meetings and controlling the contractor's work. Estimated Effort 1 week / year.

Contractors: A contractor could be utilized to prepare an overview document on all necessary activities, and present results and estimated costs to the TES/FFH working group prior to the meetings. The contractor's team should also participate in all meetings. Estimated cost: $ 5,000 / year.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

TES Goal #5 - TES Monitoring including FFH requirements

The main objective of TES Monitoring is to control the populations of Threatened and

Endangered Species identified in the respective surveys along permanent transects or other definite recording locations in an annual or biannual rhythm.

Based on Article 11 of the FFH Directive[2], habitats and species outlined in the FFH and Bird Directives shall be priority subjects of the monitoring program. It should however not be limited to these as the list of TES contains many more species of high ecological importance than the appendices of the European directives.

The LCTA standard method should not be used as vegetation monitoring system because it is not suitable for vegetation development and maintaining species diversity. Some transects using the Biomonitoring Method developed and described in 'Concept for a long time monitoring system of Bavaria' (Überlegungen zu einem Konzept geobotanischer Dauerbeobachtungsflächen für Bayern) by Pfadenhauer et.al. 1986, should be installed instead and accompanied by effective, zoological monitoring methods. The monitoring schedule should be organized to meet environmental requirements while remaining cost effective.

In addition, this approach to monitoring will be comprehensive and multipurpose, thus it might also be used to support other natural resources management programs. For example, this approach would be valuable in determining the effect of other management recommendations (e.g. LRAM activities) on identified threatened and endangered species and vice-versa. Trends in TES occurrence could reflect land management practices and may highlight possible problems. This information is important, especially if the U.S. Army has to defend the extent of training activities. By having a baseline survey and a specific TES and FFH Management Program, the U.S. Army will be able to demonstrate that it is being proactive in its approach to land management.

[2] "Member States shall undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species."

Objectives

1. To maintain a current list of known threatened and endangered species occurring on the site as required by the FGS-G (DoD, March, 1996).
2. To control areas where specific management actions are taken to reach established goals in the management plan. Implementation of this goal should enable assessment of the success of management actions in compliance with the FGS-G (DoD, March, 1996), the FFH Directive, and the Bird Directive of the EU where applicable.

Resources Required for Implementation

In-house Staff: Installation will be required to record the TES monitoring results and ensure that they are integrated into the TES Management system. Estimated Effort: 1 week/year.

Contractors: Contractors could be utilized to assist the EMO with maintaining current TES lists if a qualified biologist is not available in-house to perform monitoring. Estimated cost: $20,000, 1 - 2 months/year.

Equipment: No anticipated equipment requirements are needed to complete this goal.

Materials: No anticipated materials requirements are needed to complete this goal.

14.5.8 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
TES Goal #1	Highest	Contractor
TES Goal #2	Highest	Contractor
TES Goal #3	Highest	In-house & Contractor
TES Goal #4	Important	In-house & Contractor
TES Goal #5	Highest	Contractor

14.5.9 Cost Saving Opportunities

There are no direct cost saving opportunities from the implementation of the goals in this section, however, implementation of all the goals given, should enable more efficient and cost-effective TES management. The inclusion of the FFH activities in TES Management and Monitoring Program will minimize additional costs for this new concept.

14.5.10 Implementation Schedule

The implementation schedule shown below is specific to the intended life span of the INRMP. It should be noted that schedules might change through adaptive management and the availability of funds.

Goal Number	2003				2004				2005				2006				2007			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																				
2																				
3																				
4																				
5																				

14.5.11 Implementation Funding Options

The table below shows the potential funding sources for the goals identified in this section. The funding vehicles noted are proposed in relation to the wording of the goals and the applicable INRMP timeframe. The precise boundaries for project qualification under these funding vehicles are not always clear owing to the continuing evolution of environmental policy and the multi-faceted nature of some natural resources management issues. Further information about the funding vehicles is given in Section 14.1.

Goal	Possible Funding Vehicle
1	VENN
2	VENN
3	VENN or AG
4	VENN or AG
5	VENN or ITAM

Mannheim BSB staff will include additional programming information during the approval action by the Base Support Battalion Commander. In general, the aim is to program funding at least two years in advance of the INRMP development to encourage long-term planning.

14.5.12 Command Support

General information regarding command support can be found in Section 14.1. Additional information on command support for individual projects can be obtained from the EMO.

14.6 WETLANDS MANAGEMENT PROGRAM

In Germany, ecologically significant wetlands are not covered under and defined by a particular law, as in the United States, but under the relevant federal and state nature protection laws.

The Federal Nature Protection Act (BNatSchG §30) provides a framework for State laws. In Baden Wuerttemberg, the relevant law is the *Naturschutzgesetz Baden-Wuerttemberg* (NatG § 24), the Nature Protection State Law (29 March 1995); in Hesse it is the *Hessische Gesetz über Naturschutz und Landschaftspflege* (HeNatG § 15d).Hessian Nature Protection Law (13 June 2002

In an effort to be concise, the recommendations for the management of wetlands (according to the FGS and German laws) identified in the literature for the installations of the 293rd BSB Mannheim, are described in Volume III, Section 14.5 TES Management Program together with other protected biotope types like rare oligotrophic grasslands or particular types of forests. Therefore, the part of this section describing the future management of wetlands has been intentionally left out.

Lampertheim LTA:
Several small temporary and persistant puddles and pools exist on the training area. These mainly unvegetated small wetlands in the LTA are of ecological significance; particularly as they provide spawning grounds for the Natterjack (*Bufo calamita*) which is listed in annex II of the FFH Directive.

Details on vegetation, endangered plants, and animals as well as general steps necessary to protect it, are described in section 14.5. TES Management Program, thus the relevant part of this section has been intentionally left blank.

The wetland described above does not necessarily meet the definition of wetlands in the U.S. jurisdictional meaning as defined in the Clean Water Act (formerly the Federal Water

Pollution Control Act [33 U.S.C. 1344] which takes into account soil characteristics, the hydrology, and the existing vegetation whilst the latter is the only criterion for the classification under German law.

14.7 WATER RESOURCES MANAGEMENT PROGRAM

11.7.1 Responsibilities and Points of Contact

Management responsibilities for water resources is split between the Environmental Management Office and the O&M Division which are both under the Directorate of Public Works. Drinking water quality, wastewater treatment, and storm water management within the cantonment areas are managed by the O&M Division. Surface water monitoring and protection of groundwater are managed by the EMO. Point of contact information relating to Water Resources Management is included in Table 10.3.1. In an effort to be concise, all water resources information can be found in Volume II, section 11.7. Therefore, the rest of this section has been intentionally left blank.

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14.8 AGRICULTURAL AND GRAZING OUTLEASING PROGRAM

14.8.1 Responsibilities and Points of Contact

The host nation is responsible for outleasing of lands within the boundaries of the 293rd BSB Mannheim. Contract management for agricultural and grazing leases is the responsibility of the German Federal Assets Office (Bundesvermögensamt). The Bundesforstamt district Forstmeisters are responsible for coordination and oversight of actual activities that occur on installation lands under the outlease program. However, no formal program currently exists at the 293rd BSB Mannheim. No land is currently outleased. Therefore, the rest of this section has been intentionally left blank.

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14.9 PEST MANAGEMENT PROGRAM

There is no Pest Management in the training areas. Occasionally, the forest service orders the application of pesticides to avoid pest damage. However, this is under the responsibility of the Hessian Landesforstamt. Details on the Pest Management Program within the cantonment areas are provided in Volume II, Section 11.9. Therefore the rest of this section has been intentionally left blank.

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14.10 FIRE MANAGEMENT PROGRAM

The Fire Chief, under direction from The Directorate of Public Works (Community Fire Marshal), has primary responsibility for implementation of the fire management activities. Point of Contact information is provided in Table 10.3.1. A Mutual Aid Agreement in relation to fire protection exists between the 293rd BSB Mannheim and civilian fire departments.

At the present time, controlled burning is not used as a natural resources management tool at the 293rd BSB Mannheim. Therefore, the rest of this section has been intentionally left blank.

14.11 OUTDOOR RECREATION PROGRAM

In the training areas the only natural resource-based activity available is hunting. The Landesforstamt is responsible for all hunting and related activities at Lampertheim Training Area. This information has therefore been described in the Forest Management Program, Section 14.3. In order to be concise, all outdoor activities are described in the Outdoor Recreation Program, Volume II, Section 11.11. Point of Contact (POC) information for the Chief of Outdoor Recreation is provided in Table 13.3.1. The rest of this section has been intentionally left blank.

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14.12 GROUNDS MAINTENANCE PROGRAM

Most grounds maintenance and vegetation management work is carried out in the cantonment area some maintenance work is carried out in the Lampertheim Training Area, especially at the Total Containment Trap. To avoid repetition, all of the information for both the cantonment and training areas has been detailed within Volume II, Section 11.12. Therefore, the rest of this section has been intentionally left blank.

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CHAPTER 15.0

SUMMARY OF THE IMPLEMENTATION FOR THE TRAINING AREA PLAN

15.1 OVERVIEW

The training area plan focuses primarily on the ITAM Program and the Rare, Threatened, and Endangered Species Management Program. Agricultural Grazing and Outleasing is currently not performed at the 293rd BSB Mannheim.

The training plan identifies several requirements, as defined by the FGS-G, NATO SOFA, USAREUR Regulations, and host nation laws, that are not currently implemented. The top priorities among them being implementing the Land Condition Trend Analysis. This may be carried out in a joint project with the recommended TES monitoring. (ITAM program, LCTA goal #1, TES Management program, goal # 5). It is also recommended to prepare a TES management plan as well as an FFH Management Plan for the nominated NATURA 2000 areas and other installations.

Other important recommendations for natural resources management in the training area plan include various LRAM project concerning erosion control, reseeding, and road maintenance. Table 15.1.1 gives a complete priority list and schedule for all the goals identified in the training area plan Cost saving measures are also identified in the plan. Implementing a monitoring program for rare, threatened, and endangered species is essential to avoid extensive surveys in the future. Once all the surveys have been completed, the installation will have detailed baseline information in which to monitor important species**.**

TABLE 15.1.1:

PRIORITY LIST AND SCHEDULE FOR THE TRAINING AREA PLAN

Goal	Priority	Proposed Schedule																			
		2003				2004				2005				2006				2007			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCTA Goal #1	Highest																				
LCTA Goal #2	Important																				
LRAM Goal #1	Highest																				
LRAM Goal #2	Important																				
LRAM Goal # 3	Highest																				
LRAM Goal # 4	Highest																				
EA Goal # 1	Less Important																				
TES Goal #1	Highest																				
TES Goal #2	Highest																				
TES Goal #3	Highest																				
TES Goal #4	Important																				
TES Goal #5	Highest																				

APPENDIX A3:

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APPENDIX B3:

PERSONS CONTACTED

PERSONS CONTACTED

Name	Title/Dept./Location	Telephone
Mr. Dale Agee	TSC, Range Control Manager	0621-779-5504
Mr. Volker Bergemann	Real Property	0621-730-7375
Ms. Susan Bittick	USACE Environment	0611-816-2434
Mr. Terry Boone	Chief Environmental Division	0621-730-8675
Mr. Michael Bushard	IVL, Biologist	09195/949722
Mr. Patrick Cagney	Program Manager USACE	0611-816-2403
Mr. Luis Cruz	7th ATC, Chief TSC	0621-779-5504
Mr. Martin Elyn	ODCSENG Env. Div. (USAREUR HD)	06221-57 7699
Mr. Yitbarek Gabreyohannes	Dept. Chief EMO	0621-730-7699
Mr. Siegfried Hanusch	7th ATC Range Control	0621-779-5107
Mr. Holeczek	Chief, Support Branch	0621-730-7240
Mr. Joachim	Landratsamt Kreis Bergstraße Umweltamt	0621-15-725
Mr. James Leigh	Chief, Outdoor Recreation	0621-730-7215
Mr. Ulrich Mahler	Bezirkstelle für Naturschutz und Landschaftspflege Karlsruhe	0721-926-4359
Mr. Mecke	Dezernatsleiter VI 53.2 Schutzgebiete Regierungspräsidium Darmstadt	06151-12-6550
Mr. Helmut Meinzer	DPW Support Branch	0621-730-7009
Mr. Ulrich Menz	O&M Division	0621-730-7534
Mr. Pfaffenzeller	Mech. Shop	0621-730-8152
Ms. Rak	Real Property	0621-730-7375
Mr. Rodach	Federal Forstmeister	06345-919264
Mr. Schley	Staatl. Hochbauamt	06221-530336
Mr. R. Suck	IVL, Biologist	09195-949713

Mr. John O'Sullivan	HQ-USAREUR, Outdoor Recreation Program Manager	06221-57-6443
Mr. P. Wahl	Landesamt für Umweltschutz und Gewerbeordnung Oppenheim, Biologist	06133-9450 113
Mr. B. Weinerth	Environmental Protection Specialist	0621-730 7007
Mr. Wild	O & M Division	0621-730-7531
Mr. Ziegler	Environmental Management Office	

APPENDIX C3:

THREATENED AND ENDANGERED SPECIES LIST

THREATENED & ENDANGERED SPECIES LIST 293DTH BSB MANNHEIM INCLUDING SPECIES OF THE EARLY WARNING LISTS (V)

BW/ H– Red List of Baden-Württemberg/ Hesse
G – Red List of Germany
PR (§) – protected by law (Bundesartenschutzverordnung)
I – Reproduction guests
A description of the Red List Index of Germany, Baden-Wuerttemberg and Hesse is given in Section 5.11

SCIENTIFIC NAME	COMMON NAME	GERMAN NAME	BW/ H	G	PR
	PLANTS				
Vascular Plants (32)					
Aira caryophyllea	Silver Hair-grass	Nelken-Schmielenhafer	3		
Anthericum liliago	St. Bernard`s Lily	Traubige Graslilie	3		
Anthericum ramosum	Branched Anthericum	Ästige Graslilie	V		
Artemisia absinthium	Wormwood	Wermut	V		
Botrychium lunaria	Moonwort	Mondraute	3	3	§
Chondrilla juncea	Unknown	Binsen-Knorpelsalat	3		
Corynephorus canescens	Grey Hair-grass	Silbergras	3		
Crepis tectorum	Hawksbeard	Dach-Pippau	3		
Eryngium campestre	Field Eryngo	Feld-Mannstreu	3		
Euphorbia seguierana	Spurge	Steppenwolfsmilch	3	3	
Filago arvensis	Cudweed	Acker-Filzkraut	3	3	
Helichrysum arenarium	Unknown	Sand-Strohblume	2	3	§
Hypochoeris glabra	Smooth Cat`s-Ear	Kahles Ferkelkraut	2	2	
Hypochoeris maculata	Spotted Cats`-Ear	Geflecktes Ferkelkraut	2	3	

Jurinea cyanoides	Unknown	Sand-Silberscharte	1	2	§
Koeleria glauca	Glaucous Hair-grass	Blaugraue Kammschmiele	2	2	
Medicago minima	Bur Medick	Zwerg-Schneckenklee	3	3	
Nepeta cataria	Catmint	Echte Katzenminze	2	3	
Onopordum acanthium	Cotton Thistle	Gewöhnliche Eselsdistel	3		
Papaver dubium	Long-headed Poppy	Saat-Mohn	V		
Petrorhagia prolifera	Pink	Sprossende Felsennelke	V		
Peucedanum oreoselinum	Hog Fennel	Berg-Haarstrang	3		
Potentilla incana	Sand Cinquefoil	Sand-Fingerkraut	3		
Scleranthus perennis	Perennial Knawel	Ausdauerndes Knäuelkraut	3		
Silene conica	Sand Catchfly	Kegelfrüchtiges Leimkraut	2		
Silene otites	Spanish Catchfly	Ohrlöffel-Leimkraut	2	3	
Spergula morisonii	Spurrey, spec.	Frühlings-Spörgel	2		
Stachys recta	Woundwort	Aufrechter Ziest	V		
Teesdalia nudicaulis	Shepherd`s Cress	Bauernsenf	2		
Thymus serpyllum	Breckland Thyme	Sand-Thymian	2		
Trifolium arvense	Hare`s-foot Clover	Hasen-Klee	V		
Viola rupestris	Teesdale Violet	Sand-Veilchen	3	3	
Großpilze (6)					
Agrocybe pusiola	Unknown	Kleiner Schüppling	2	2	
Bovista tomentosa	Unknown	Filziger Bovist	2	2	
Geastrum minimum	Unknown	Zwerg-Erdstern	2	3	
Lycoperdon ericaeum	Unknown	Moos-Stäubling	2	3	
Sepultaria arenicola	Unknown	Sandborstling	3		
Tulostoma fimbriatum	Unknown	Gewimperter Stielbovist	3	3	

ANIMALS (106)					
Beetles (17)					
Amara eurynota	Sun Beetles, spec.	Großer Kamelläufer	V		
Amara fulva	Sun Beetles, spec.	Gelber Kamelläufer	V		
Broscus cephalotes	Unknown	Kopfläufer	2	V	
Calathus ambiguus	Unknown	Breithalsiger Kahnläufer	V		
Calathus erratus	Unknown	Schmalhalsiger Kahnläufer	V		
Carabus cancellatus	Cancellate Ground Beetle	Gitterlaufkäfer	V	V	§
Cicindela hybrida	Dune Tiger Beetle	Dünen-Sandlaufkäfer	3		§
Harpalus anxius	Black-lustred Ground Beetles, spec.	Seidenmatter Schnellläufer	V		
Harpalus autumnalis	Black-lustred Ground Beetles, spec.	Herbst-Schnellläufer	3	3	
Harpalus flavescens	Black-lustred Ground Beetles, spec.	Rostgelber Schnellläufer	1	3	
Harpalus melancholicus	Black-lustred Ground Beetles, spec.	Dünen-Schnellläufer	2	2	
Harpalus pumilus	Black-lustred Ground Beetles, spec.	Zwerg-Schnellläufer	V	V	
Harpalus serripes	Black-lustred Ground Beetles, spec.	Gewölbter Schnellläufer	3	V	
Harpalus smaragdinus	Black-lustred Ground Beetles, spec.	Smaragdfarbener Schnellläufer	V		
Masoreus wetterhallii	Unknown	Sand-Steppenläufer	1	3	
Notiphilus aquaticus	Unknown	Dunkler Laubläufer	3	V	
Pseudoophonus calceatus	Unknown	Sand-Haarschnellläufer	3	3	
Bees (3)					
Ammobates punctatus	Unknown	Sandgängerbiene	1	2	§
Anthophora bimaculata	Flower Bees, spec.	Dünen-Pelzbiene	2	3	§
Nomoides minutissimus	Unknown	Steppenbiene	1	2	§
Birds (31)					

Alauda arvensis	Sky Lark	Feldlerche	V	V	
Anthus campestris	Tawny Pipit	Brachpieper	1	2	§
Anthus trivialis	Tree Pipit	Baumpieper	V		
Ardea cinerea	Grey Heron	Graureiher	V		
Caprimulgus europaeus	Nightjar	Ziegenmelker	1	2	§
Charadrius dubius	Little Ringed Plover	Flußregenpfeifer	3		§
Circus aeroginosus	Marsh Harrier	Rohrweihe	1	4	
Circus cyaneus	Hen Harrier	Kornweihe	1	1	
Cuculus canorus	Cockoo	Kuckuck	V	V	
Delichon urbica	House Martin	Mehlschwalbe	3		
Falco subboteo	Hobby	Baumfalke	3	3	
Hirunda rustica	Swallow	Rauchschwalbe	V	V	
Jynx torquilla	Wyrneck	Wendehals	1	2	§
Lanius collurio	Red-backed Shrike	Neuntöter	2	V	
Lullula arborea	Woodlark	Heidelerche	1	2	§
Merops apiaster	Bee-eater	Bienenfresser	1	2	§
Miliaria calandra	Corn Bunting	Grauammer	2	2	
Milvus migrans	Black Kite	Schwarzmilan	3		
Milvus milvus	Red Kite	Rotmilan	3	2	
Oenanthe oenanthe	Northern Wheatear	Steinschmätzer	1	V	

Oriolus oriolus	Golden Oriole	Pirol	V		
Passer montanus	Tree Sparrow	Feldsperling	V	V	
Perdix perdix	Grey Partridge	Rebhuhn	2	2	
Pernis apivorus	Honey Buzzard	Wespenbussard		3	
Phoenicurus phoenicurus	Redstart	Gartenrotschwanz	3	V	
Phylloscopus trochilus	Willow Warbler	Fitis	V		
Saxicola rubetra	Whinchat	Braunkehlchen	2	3	
Sylvia communis	Whitethroat	Dorngrasmücke	3	V	
Tyto alba	Barn Owl	Schleiereule		3	
Upupa epops	Hoopoe	Wiedehopf	1	1	§
Vanellus vanellus	Lapwing	Kiebitz		3	§

Locusts(13)					
Aiolopus thalassinus	Longwinged Grasshopper	Grüne Strandschrecke	1		§
Calliptamus italicus	Italian Locust	Italienische Schönschrecke	1	1	§
Chorthippus dorsatus	Meadow Grasshopper	Wiesengrashüpfer	3		
Chorthippus mollis	Lesser Field Grasshopper	Verkannter Grashüpfer	3		
Chorthippus vagans	Dryland Grasshopper	Steppengrashüpfer	3	3	
Gryllus campestris	Field-Cricket	Feld-Grille		3	
Metrioptera bicolor	Twocoulered Bushcricket	Zweifarbige Beißschrecke	3		
Myrmeleotettix maculatus	Mottled Grasshopper	Gefleckte Keulenschrecke	3		
Oecanthus pellucens	Italian Cricket	Weinhähnchen	2		
Oedipoda caerulescens	Blue-winged Grasshopper	Blauflügelige Ödlandschrecke	3	3	§
Oedipoda germanica	Red-winged Grasshopper	Rotflügelige Ödlandschrecke	1	1	§
Platycleis albopunctata	Western Bushcricket	Westliche Beißschrecke	2	3	
Sphingonotus caerulans	Blue-winged Locust	Blauflügelige Sandschrecke	2	2	§
Amphibians (2)					
Bufo calamita	Natterjack Toad	Kreuzkröte	2	3	§
Rana kl. esculenta	Water Frog	Wasserfrosch	D	3	
Reptils (3)					

Coronella austriaca	Smooth Snake	Schlingnatter	2	3	
Lacerta agilis	Sand Lizard	Zauneidechse	3	3	
Lacerta vivipara	Viviparous Lizard	Waldeidechse	V		
Spiders (35)					
Acartauchenius scurrilis	Unknown	Unbekannt	3	3	
Agroeca cupreus	Unknown	Unbekannt		3	
Agroeca lusatica	Unknown	Unbekannt	3	3	
Alopecosa accentuata	Unknown	Unbekannt	3		
Alopecosa cursor	Unknown	Unbekannt	2	2	
Altella lucida	Unknown	Unbekannt	3	3	
Arctosa perita	Unknown	Unbekannt	2	3	
Callilepis nocturna	Unknown	Unbekannt	3	3	
Centromerus capucinus	Unknown	Unbekannt		3	
Ceratinopsis romana	Unknown	Unbekannt	3	3	
Cheiracanthium campestre	Unknown	Unbekannt		2	
Cheiracanthium pennyi	Unknown	Unbekannt		2	
Cheiracanthium punctorium	Unknown	Unbekannt	2	3	
Cheiracanthium virescens	Unknown	Unbekannt	3	3	
Dipoena coracina	Unknown	Unbekannt	3	3	

Haplodrassus dalmatensis	Unknown	Unbekannt	3	3	
Hypsosinga albovittata	Unknown	Glanz-Kreuzspinne	3	3	
Micaria dives	Unknown	Unbekannt		2	
Neoscona adiantum	Unknown	Heideradnetzspinne	3	3	
Pellenes nigrociliatus	Unknown	Unbekannt	2	2	
Pellenes tripunctatus	Unknown	Unbekannt	3	3	
Phaeocedus braccatus	Unknown	Unbekannt	3	2	
Scotina celans	Unknown	Unbekannt		3	
Sitticus saltator	Unknown	Unbekannt	3	3	
Steatoda albomaculata	Unknown	Unbekannt	3	3	
Synageles hilarulus	Unknown	Unbekannt	3	3	
Talavera aperta	Unknown	Unbekannt		G	
Thomisus onustus	Unknown	Unbekannt		3	
Titanoeca psammophila	Unknown	Unbekannt		1	
Trichopterna cito	Unknown	Unbekannt	3	3	
Trochosa robustus	Unknown	Unbekannt	3	3	
Xysticus striatipes	Unknown	Unbekannt		3	
Zelotes electus	Unknown	Unbekannt	2		
Zelotes erebeus	Unknown	Unbekannt	3	3	
Zelotes longipes	Unknown	Unbekannt		3	

Wasps (2)					
Harpactus elegans	Digger Wasps, spec.	Grabwespe, spec.	1	3	
Holopyga fervida	Cuckoo Wasps, spec.	Goldwespe, spec.	1	2	